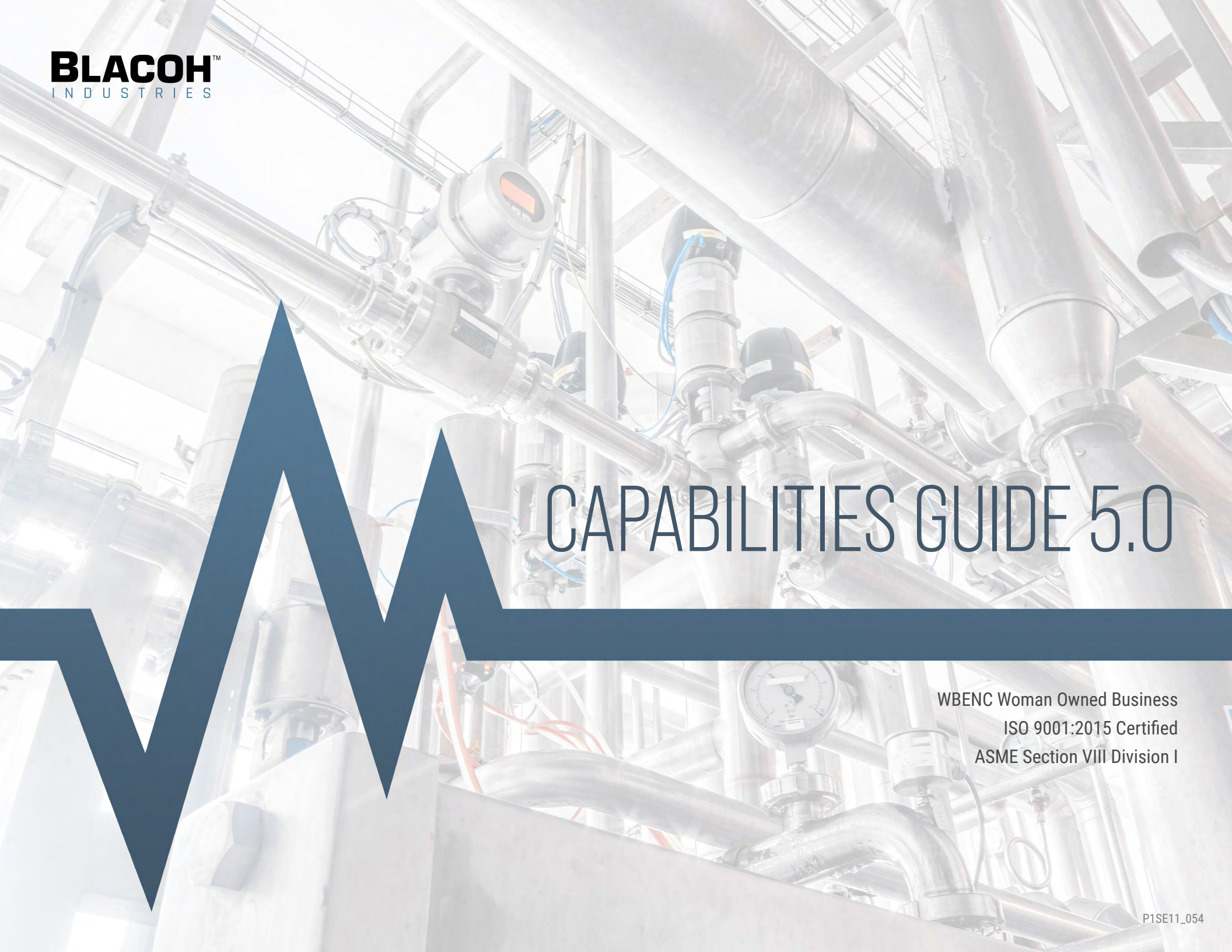
BLACOH™
INDUSTRIES



CAPABILITIES GUIDE 5.0

WBENC Woman Owned Business
ISO 9001:2015 Certified
ASME Section VIII Division I

P1SE11_054

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BLACOH PRODUCTS ARE DESIGNED TO HELP PREVENT, ENSURE, PROTECT YOUR PUMPING SYSTEM FROM HARMFUL AND DAMAGING HYDRAULIC SHOCK & VIBRATION. OUR UNITS CAN ELIMINATE UP TO 99% OF THE PULSATION.

This Capabilities Guide is great as a quick reference, but know that our sales and engineering team are always available for full support.

CONTACT US:
sales@blacoh.com

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BLACOH™
INDUSTRIES

COMPREHENSIVE SOLUTIONS

There is no substitute for experience. Understanding your requirements and specific needs at a technical level and proof of design ensure you are getting the expertise you need and deserve.

TECHNICAL SALES SUPPORT

Our sales team and global footprint make it easy for you to get the answers you need and personalized solutions for your pumping system.

ENGINEERING ASSISTANCE

The engineering team is here to problem solve and provide you with the necessary drawings, technical documentation, calculations, and customized solutions.

QUICK TURNAROUND

Some of our units are ready to ship same day. Our customer service team is proud of our exceptional on-time delivery rate.

SINCE 1976

From common pumping system problems to complex issues involving fluid dynamics, Blacoh has been improving the performance, reliability, safety, and productivity of pumping systems for nearly 50 years.

FULL SYSTEM SOLUTIONS

As the industry's leader and foremost expert in the design and manufacture of fluid control products, Blacoh has the most expansive offering in the marketplace, all proudly made in the USA and backed by our team of engineering and application experts.

SURGE SOLUTIONS

Blacoh designs and develops customized solutions and transient pressure monitoring in large scale applications where more in-depth analysis and support are required to solve critical issues with water hammer and hydraulic surge.

WHAT MAKES THE BLACOH EXPERIENCE DIFFERENT

PROVIDING YOU WITH THE NECESSARY RESOURCES:

CONFIGURE ONLINE

eConfigurator allows you to build your product online and get a dimensional drawing to your specifications.

IMMEDIATE QUOTES

Our website's eQuote is a quick and easy way to request quotes online. Available 24/7.

ENGINEERING DRAWINGS

Engineering assistance and 3D drawings are available for easy implementation into your system model.

WEB & MARKETING ASSISTANCE

The Blacoh website has literature and videos for download. Create an account for access to additional media assets!

BLACOH UNIVERSITY™

Enhance your knowledge and grow professionally with convenient online learning. Blacoh University is an e-learning resource dedicated to the discovery, development, and application of knowledge relating to fluid control processes across a variety of industries. Take advantage of white papers, articles, videos, and many other resources relevant to fluid control professionals.

INDUSTRY RESOURCES

It is not just about the products; we are dedicated to providing white papers, case studies, articles, and videos of a wide range of topics across various fluid related industries to grow professionally.

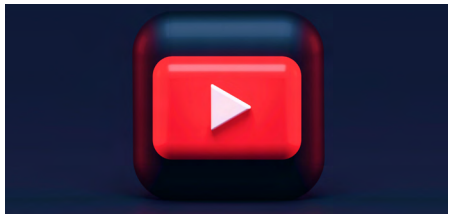
DISTRIBUTOR TRAINING

We provide in-person Distributor Training Sessions or you can view the virtual series online to enhance your industry knowledge and ability to confidently deliver fluid control solutions to end users.

ENGINEER PDH CREDIT

Engineering professionals can watch our courses, complete quizzes, and earn free Professional Development Hours (PDH) Lecture video topics include acceleration head, surge analysis, and water hammer.

MAINTENANCE VIDEOS



Quick and easy to view video tutorials describe the how-to's of installation, maintenance, and repair of our Blacoh product lines. Watch assembly videos for each model and get quick links to installation manuals.

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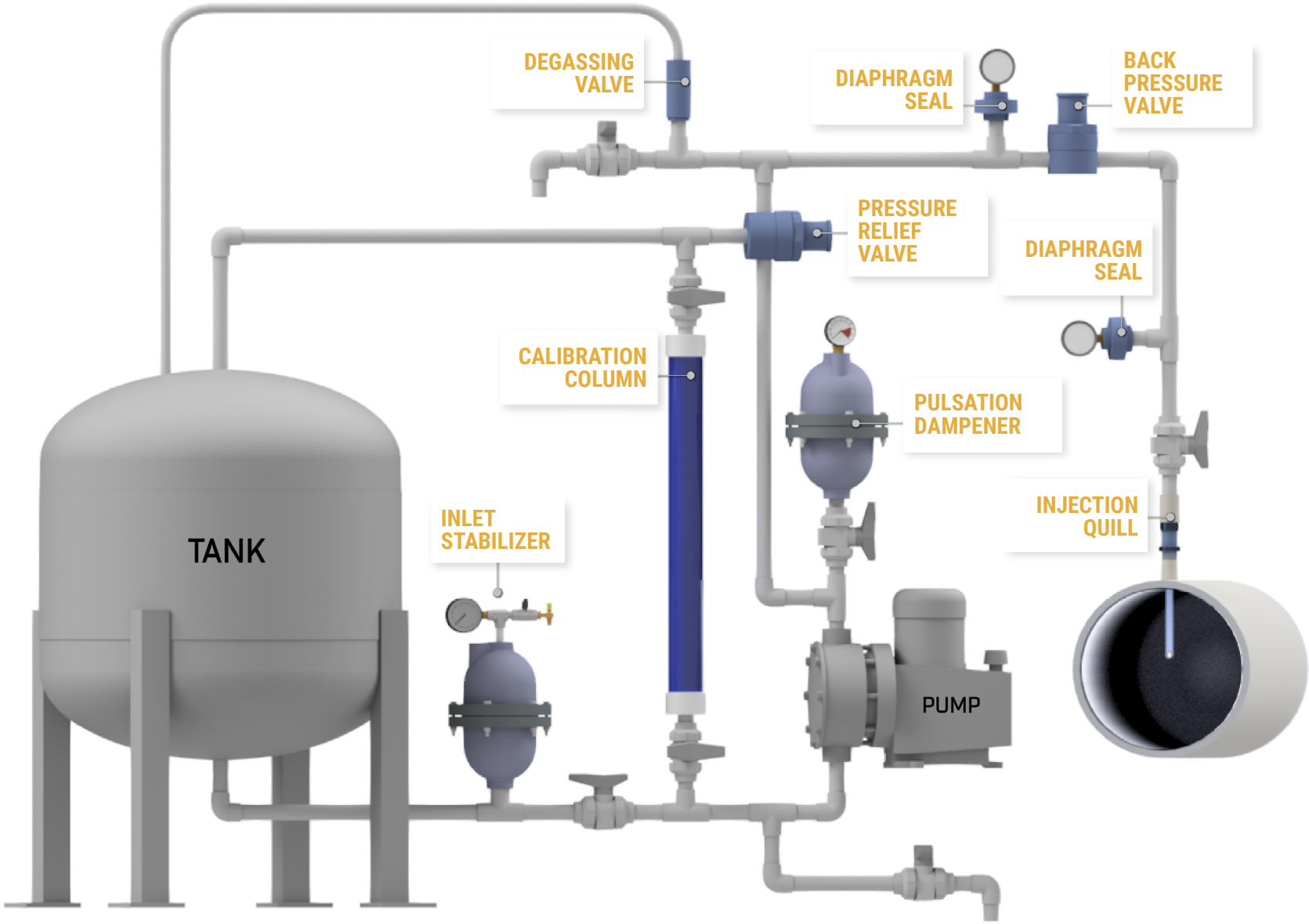
Click on a product label below to go to the corresponding document page.

FULL SYSTEM SOLUTIONS



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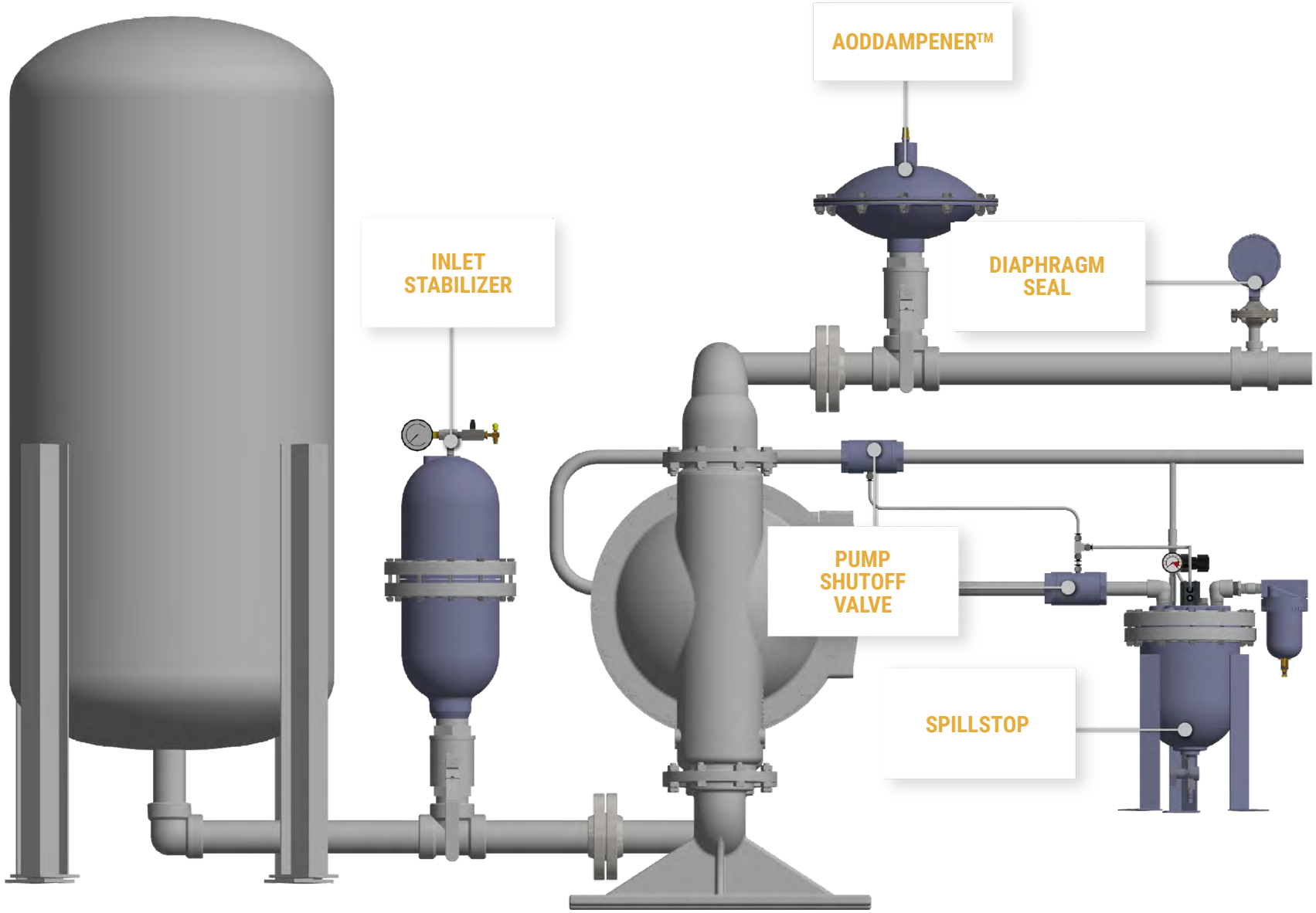
FULL SYSTEM SOLUTIONS



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FULL SYSTEM SOLUTIONS

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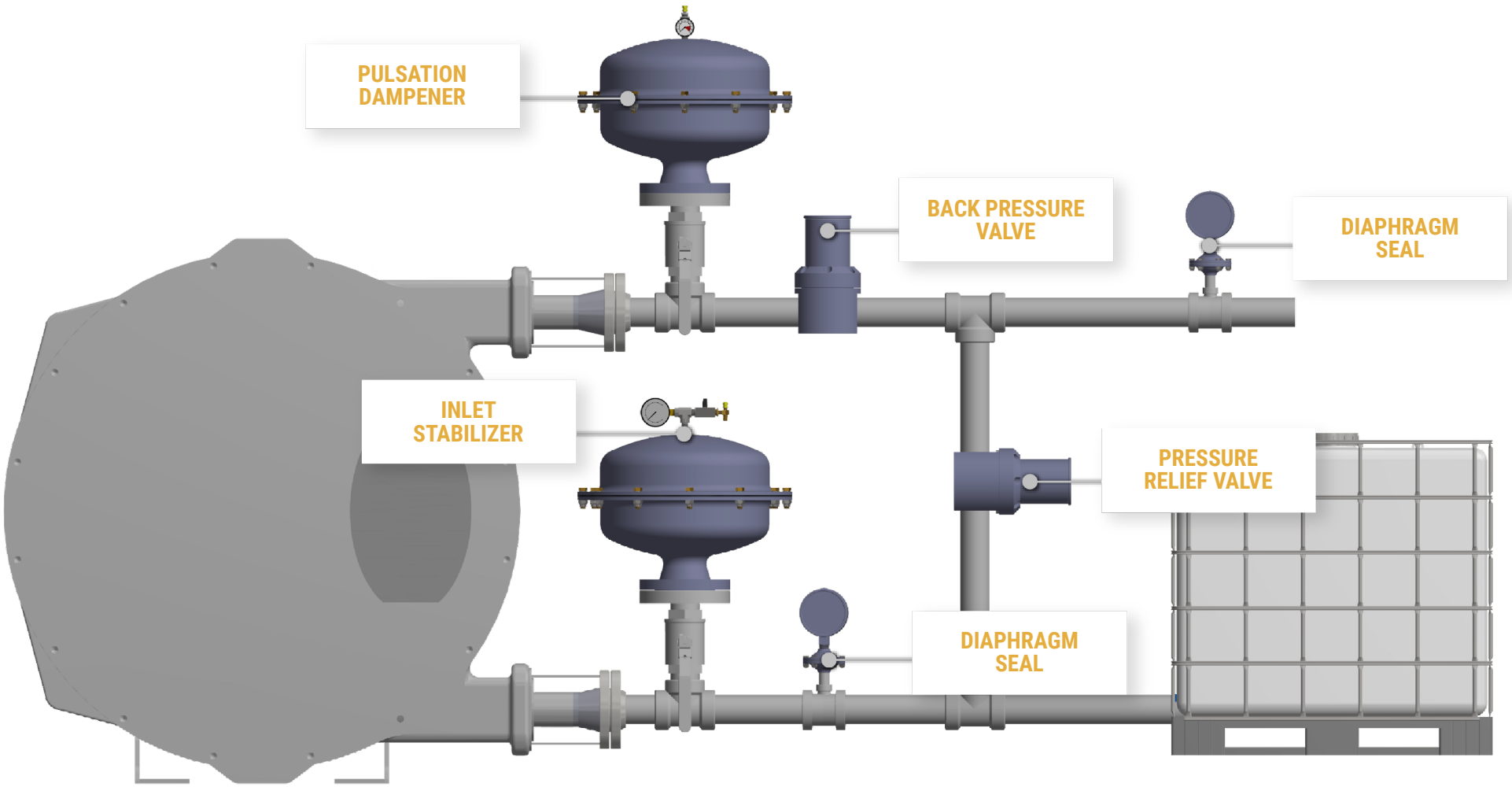


4 IN³ (0.06 L)

SENTRY™ III

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	CPVC Polypropylene PVC PVDF	Buna-N EPDM Hypalon Neoprene PTFE Santoprene Silicone - Food Grade Viton	0.375" (10mm) 0.5" (15mm)	FNPT BSP ANSI Flange DN Flange Socket Weld Tri-clamp Union	150 psi (10.3 bar) PVDF 200 psi (13.7 bar)	Adjustable Chargeable SS Chargeable (V Model)	1 to 4 lbs (0.4 to 1.8 kg)	ATEX NSF CRN PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
METAL 	Alloy 20 Hastelloy C Stainless Steel Stainless Steel 30 RA Polished		0.375" (10mm) 0.5" (15mm) 0.75" (20mm) Tri-clamp		1000 psi (68.9 bar)		4 to 7 lbs (1.8 to 3.1 kg)	

Plastic Series	Wetted/Non-Wetted
04PP 04PVC 04X 04K	Polypropylene PVC CPVC PVDF

Metal Series	Wetted/Non-Wetted
1120	Stainless Steel
1170	Alloy 20
1175	Alloy 20 / Stainless Steel
1185	Hastelloy C / Stainless Steel
7325	Stainless Steel (Tri-clamp)
8325	Stainless Steel 30RA Polish (Tri-clamp)

Accessories	
Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

10 IN³ (0.16 L)

SENTRY™ III

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	Acetal CPVC Polypropylene PVC PVDF	Buna-N EPDM Hypalon Neoprene PTFE Santoprene Silicone Food Grade Viton	0.375" (10mm) 0.5" (15mm)	FNPT BSP ANSI Flange DN Flange Socket Weld Tri-clamp Union	150 psi (10.3 bar) PVDF 200 psi (13.7 bar)	Adjustable Chargeable SS Chargeable (V Model) Inlet Stabilizer (J Model)	1 to 5 lbs (0.4 to 2.2 kg)	ATEX NSF CRN PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
METAL 	Alloy 20 Hastelloy C Stainless Steel Stainless Steel 30RA Polish		0.375" (10mm) 0.5" (15mm) 0.75" (20mm) Tri-clamp		1000 psi (68.9 bar)		4 to 8 lbs (1.8 to 3.6 kg)	

Plastic Series	Wetted/Non-Wetted
10D 10PP 10PVC 10X 10K	Acetal Polypropylene PVC CPVC PVDF

Metal Series	Wetted/Non-Wetted
1020	Stainless Steel
1070	Alloy 20
1075	Alloy 20 / Stainless Steel
1085	Hastelloy C / Stainless Steel
7320	Stainless Steel (Tri-clamp)
8320	Stainless Steel 30RA Polish (Tri-clamp)

Accessories	
Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

12 IN³ (0.20 L)

SENTRY™ TEF-GUARD

Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
Stainless Steel Hastelloy C / SS	PTFE	0.5” (15 mm)	FNPT BSP ANSI Flange	2000 psi (137.8 bar)	Chargeable	12 to 15 lbs (5.4 kg to 6.8 kg)	ATEX PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified

Series	Wetted/Non-Wetted
TG12SS TG12HS	Stainless Steel Hastelloy C / Stainless Steel

Accessories	
Charging Kits Spare Bladder Kits Hardware Kits Diaphragm Seals Custom Gauges Pressure Relief Valves	Back Pressure Valves Spill Containment for AODD Calibration Columns Injection Quills Degassing Valves

36 IN³ (0.59 L)

SENTRY™ II

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	Acetal CPVC Polypropylene PTFE PVC PVDF	Aflas Buna-N Buna-N Food Grade EPDM Hypalon Neoprene PTFE Santoprene Silicone Food Grade Viton	0.5” (15mm) 0.75” (20mm) 1” (25mm)	FNPT BSP ANSI Flange DN Flange Socket Weld Tri-clamp Union	150 psi (10.3 bar)	Adjustable Automatic Chargeable SS Chargeable (V Model)	7 to 15 lbs (3.1 to 6.8 kg)	ATEX NSF CRN PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
METAL 	Alloy 20 Carbon Steel Hastelloy C Stainless Steel Stainless Steel 30RA Polish		0.75” (20mm) 1” (25mm) 1.5” (40mm) Tri-clamp		1000 psi (68.9 bar)		13 to 19 lbs (5.8 to 8.6 kg)	

Plastic Series	Wetted/Non-Wetted
601	PTFE
1301	Polypropylene
1305	Polypropylene (0.5”)
1311	PVC
1315	PVC (0.5”)
1341	CPVC / PVC
1345	CPVC / PVC (0.5”)
1401	PVDF / Polypropylene
1801	Acetal / Polypropylene

Metal Series	Wetted/Non-Wetted
3120	Stainless Steel
3140	Carbon Steel
3175	Alloy 20 / Stainless Steel
3185	Hastelloy C / Stainless Steel
7225	Stainless Steel (Tri-clamp)
8225	Stainless Steel 30RA Polish (Tri-clamp)

Accessories	
Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

85 IN³ (1.4 L)

SENTRY™ II

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	Acetal Conductive Polypropylene CPVC Polypropylene PTFE PVC PVDF	Aflas Buna-N Buna-N Food Grade EPDM Hypalon Neoprene PTFE Santoprene Silicone Food Grade Viton	0.5” (15mm) 0.75” (20mm) 1” (25mm)	FNPT BSP ANSI Flange DN Flange Socket Weld Tri-clamp Union	150 psi (10.3 bar) PVDF 250 psi (17.2 bar)	Adjustable Automatic Chargeable SS Chargeable (V Model) Inlet Stabilizer (J Model)	7 to 15 lbs (3.1 to 6.8 kg)	ATEX NSF CRN PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
METAL 	Alloy 20 Carbon Steel Hastelloy C Stainless Steel Stainless Steel 30RA Polish		0.75” (20mm) 1” (25mm) 1.5” (40mm) Tri-clamp		1000 psi (68.9 bar)		13 to 19 lbs (5.8 to 8.6 kg)	

Plastic Series	Wetted/Non-Wetted
301	Polypropylene
305	Polypropylene (0.5”)
311	PVC
315	PVC (0.5”)
321	Conductive Polypropylene
331	CPVC
335	CPVC (0.5”)
401	PVDF / Polypropylene
421	PVDF
651	PFTE
801	Acetal / Polypropylene

Metal Series	Wetted/Non-Wetted
3020	Stainless Steel
3040	Carbon Steel
3075	Alloy 20 / Stainless Steel
3085	Hastelloy C / Stainless Steel
7220	Stainless Steel (Tri-clamp)
8220	Stainless Steel 30RA Polish (Tri-clamp)

Accessories

- Charging Kits
- Spare Bladder Kits
- Hardware Kits
- Diaphragm Seals
- Custom Gauges
- Pressure Relief Valves
- Back Pressure Valves
- Spill Containment for AODD
- Calibration Columns
- Injection Quills
- Degassing Valves

175 IN³ (2.87 L)

SENTRY™ I

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	Polypropylene PTFE PVC PVDF	Aflas Buna-N EPDM Hypalon Neoprene PTFE Santoprene Silicone Food Grade Viton	1.5” (40mm) 2” (50mm)	FNPT BSP ANSI Flange DN Flange Socket Weld Tri-clamp Union	150 psi (10.3 bar)	Adjustable Automatic Chargeable SS Chargeable (V Model)	15 to 26 lbs (6.8 to 11.7 kg)	ATEX NSF CRN PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
METAL 	Alloy 20 Hastelloy C Stainless Steel Stainless Steel 30RA Polish		2” (50mm) 2.5” (65mm) Tri-clamp		1000 psi (68.9 bar)		30 to 45 lbs (13.6 to 20.4 kg)	

Plastic Series	Wetted/Non-Wetted
901	Polypropylene / Noryl
905	Polypropylene / Noryl (1.5”)
911	PVC / Noryl
915	PVC / Noryl (1.5”)
1201	PVDF / Noryl

Metal Series	Wetted/Non-Wetted
2175	Alloy 20 / Stainless Steel
2185	Hastelloy C / Stainless Steel
2500	Stainless Steel / Noryl
2520	Stainless Steel
7125	Stainless Steel (Tri-clamp)
8125	Stainless Steel 30RA Polish (Tri-clamp)

Accessories	
Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

370 IN³ (6.06 L)

SENTRY™ I

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	Polypropylene PTFE PVC PVDF	Aflas Buna-N EPDM Hypalon Neoprene PTFE Santoprene Silicone Food Grade Viton SS Metal Belows (Series 2420)	1.5” (40mm) 2” (50mm)	FNPT BSP ANSI Flange DN Flange Socket Weld Tri-clamp Union	150 psi (10.3 bar) PVDF 200 psi (13.7 bar)	Adjustable Automatic Chargeable SS Chargeable (V Model) Inlet Stabilizer (J Model)	18 to 27 lbs (8.1 to 12.2 kg)	ATEX NSF CRN PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
METAL 	Alloy 20 Hastelloy C Stainless Steel Stainless Steel 30RA Polish		2” (50mm) 2.5” (65mm) Tri-clamp		1000 psi (68.9 bar) 16 Bolt SS 1250 psi (86.1 bar)		32 to 52 lbs (14.5 to 23.5 kg)	

Plastic Series	Wetted/Non-Wetted
101	Polypropylene
105	Polypropylene (1.5”)
111	PVC
115	PVC (1.5”)
201	PVDF / Polypropylene
221	PVDF

Metal Series	Wetted/Non-Wetted
2075	Alloy 20 / Stainless Steel
2085	Hastelloy C / Stainless Steel
2400	Stainless Steel / Polypropylene
2420	Stainless Steel
7120	Stainless Steel (Tri-clamp)
8121	Stainless Steel 30RA Polish (Tri-clamp)

Accessories

Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

1155 IN³ (18.93 L)

SENTRY™ IV

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	Polypropylene	Buna-N EPDM Hypalon Neoprene PTFE Viton	3” (80mm)	FNPT ANSI Flange DN Flange Tri-clamp	150 psi (10.3 bar)	Adjustable Automatic Chargeable SS Chargeable (V Model) Inlet Stabilizer (J Model)	35 lbs (15.8 kg)	ATEX PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant PMI Bolt Tensile Customer Specified
METAL 	Aluminum Epoxy Coated Aluminum Alloy 20 Carbon Steel Epoxy Coated Carbon Steel Hastelloy C Stainless Steel Stainless Steel 30RA Polish		3” (80mm) 4” (100mm) 6” (150mm)		275 psi (18.9 bar)		32 to 79 lbs (14.5 to 35.8 kg)	

Plastic	Wetted/Non-Wetted
P4000	Polypropylene

Epoxy Coated	Wetted/Non-Wetted
4010	Epoxy Coated Aluminum / Aluminum
4015	Epoxy Coated Aluminum
4045	Epoxy Coated Carbon Steel
4046	Epoxy Coated Carbon Steel / Aluminum
4065	Stainless Steel / Epoxy Coated Carbon Steel

Metal	Wetted/Non-Wetted
4000	Aluminum
4020	Stainless Steel
4030	Carbon Steel / Aluminum
4040	Carbon Steel
4050	Stainless Steel / Aluminum
4060	Stainless Steel / Carbon Steel
4075	Alloy 20 / Stainless Steel
4080	Hastelloy C
4085	Hastelloy C / Stainless Steel
7420	Stainless Steel (Tri-clamp)
8420	Stainless Steel 30RA Polish (Tri-clamp)

Accessories	
Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

2310 IN³ (37.85 L)

SENTRY™ V

PULSATION DAMPENERS/INLET STABILIZERS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Estimated Shipping Weight	Certifications & Testing
METAL 	Carbon Steel Epoxy Coated Stainless Steel	Buna-N EPDM Hypalon Neoprene Viton	3” (40mm) 4” (50mm) 6” (150mm)	FNPT ANSI Flange DN Flange	275 psi (18.9 bar)	Adjustable Automatic Chargeable SS Chargeable (V Model) Inlet Stabilizer (J Model)	146 lbs (66.2 kg)	ATEX PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant PMI Bolt Tensile Customer Specified

Metal Series	Wetted/Non-Wetted
5020 5040 5045	Stainless Steel Carbon Steel Epoxy Coated Carbon Steel

Accessories	
Charging Kits	Back Pressure Valves
Spare Bladder Kits	Spill Containment for AODD
Hardware Kits	Calibration Columns
Diaphragm Seals	Injection Quills
Custom Gauges	Degassing Valves
Pressure Relief Valves	

8-122 IN³ (0.13-2 L)

SENTRY™ XP

HIGH PRESSURE DAMPENERS

Capacity	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Certifications & Testing
8 in³ (0.13 L) 12 in³ (0.2 L) 24 in³ (0.39 L)	Stainless Steel Hastelloy C / SS[2] Alloy 20 / SS[2] Duplex Stainless Steel	Buna-N EPDM PTFE Viton	0.5” (15mm)	FNPT BSP ANSI Flange FNPT Flow Through Autoclave	2000 to 15000 psi (137.8 to 1034.2 bar)	Chargeable Optional Gauge Adapter	ATEX CRN[1] PED ARRA 3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant Radiography (X-Ray) PMI Bolt Tensile Customer Specified
36 in³ (0.59 L) 60in³ (0.98 L) 91in³ (1.5 L) 122in³ (2 L)			0.75” (20mm) 1” (25mm) 1.5” (40mm) 2” (50mm)	FNPT BSP ANSI Flange FNPT Flow Through	2600 to 8000 psi (179.2 to 551.5 bar)		
ASME Certified Units							
8 in³ (0.13 L) 12 in³ (0.2 L) 24 in³ (0.39 L)	316L Stainless Steel	PTFE	0.5” (15mm)	FNPT	4000 psi (275.7 bar)	Chargeable Optional Gauge Adapter	ASME U-Stamp Division VIII, Section I

[1] Available on 8in³, 12in³, 24in³ up to 8400 psi only
[2] PTFE only

THE ORIGINAL

AODDAMPENER™

PULSATION DAMPENER PRESIZED FOR AODD PUMPS

The AODDampener™ series is Blacoh's most cost effective dampener model for systems using AODD pumps. Designed exclusively for use with air operated double diaphragm (AODD) pumps, this stainless steel dampener is pre-sized for pumps up to 3" and features a unique fully automatic air control to save on energy costs.

The AODDampener is compatible with most fluids as well as a wide range of both plastic and metal system components. Connected to your plant's air supply line, the fully automatic air control reduces dampener air consumption. It only uses the amount of air required to adjust to changes in pump discharge pressure, ensuring the dampener remains at optimum charge.

SPECIFICATIONS

CONSTRUCTION: 316 Stainless Steel housing, PTFE diaphragm

PUMP SIZE: 1", 1.5", 2", 3"

CONNECTIONS: NPT, BSP, ANSI Flange, Tri-Clamp

PRESSURE RATING: up to 150 psi (10.3 bar)

AIR CONTROL: Automatic

CERTIFICATIONS: ATEX available

THE ORIGINAL

AODDAMPENER™

Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Spare Kit	Certifications & Testing
316 Stainless Steel Stainless Steel 30RA Polish	PTFE	1” (25mm) 1.5” (40mm) 2” (50mm) 3” (80mm)	NPT BSP ANSI Flange Tri-clamp	150 psi (10.3 bar)	Automatic	AOD-10-100 AOD-15-100 AOD-20-100 AOD-30-100	ATEX Material Cert Cert of Origin Hydrostatic

CONFIGURATOR

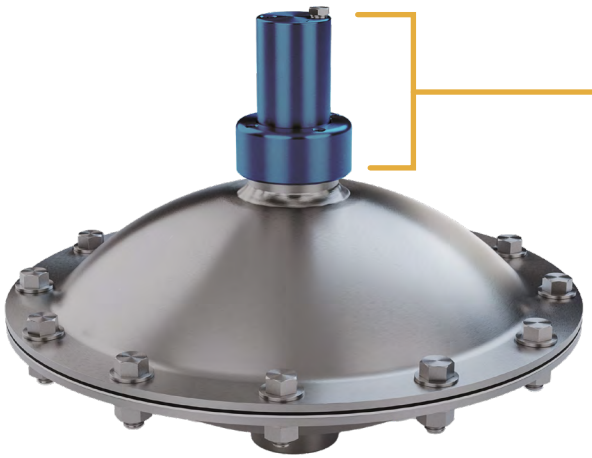
Series	Pump/Inlet Size	Inlet Type	ATEX Cert.
AOD	10	NPT	
	1” (10)	FNPT (NPT)	ATEX (AT)
	1.5” (15)	BSP (BSP)	
	2” (20)	150# Flange (FLG)	
	3” (30)	Tri-clamp (TC)	
		Tri-clamp Polished (TCP)	

NEW!

SENTRY™ AIS

AUTOMATIC INLET STABILIZER

Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Air Control Type	Spare Kit	Certifications & Testing
316 Stainless Steel	PTFE	1.5" (40mm) 2" (50mm)	NPT BSP ANSI Flange Tri-clamp	150 psi (10.3 bar)	Automatic	AIS-15-100 AIS-20-100	3.1 Cert Material Cert Cert of Origin Hydrostatic Dye Penetrant PMI Bolt Tensile Customer Specified



HOW IT WORKS

Say "goodbye" to manual adjustments and "hello" to streamlined operation! The SENTRY Automatic Inlet Stabilizer sets a new industry standard. Pre-sized for 1.5" and 2" AODD pump inlets, this revolutionary solution will reduce wear and tear on the suction side of your pump.

The automatic air control valve incorporates a fully integrated, automatic venturi valve designed to accommodate negative pressures within the system.

During vacuum conditions, the valve lifts the bladder to maintain dampening capabilities. While under positive pressure, it forces the bladder down with compressed air. This dual-control mechanism ensures optimal system performance in both suction & positive pressure conditions.

ASME CERTIFIED

SURGESHIELD™

PULSATION DAMPENER & SURGE VESSEL

Housing Material	Bladder Material	Capacities	Inlet Size"	Inlet Type	Max Pressure	Certifications & Testing
Stainless Steel Carbon Steel	PVC Urethane	15 gallons (57 L) 25 gallons (95 L) 37 gallons (140 L)	4" (102mm) 5" (127mm) 6" (150mm)	ANSI Flange	250 psi (17.2 bar)	ATEX ASME UM-Stamp (Division VIII, Section I) Material Cert Cert of Origin Hydrostatic

Standard 15, 25, 37 gallon dampener series are designed to act as shock absorbers for your peristaltic pumps while also serving as small bladder-style surge vessels. Prevent pipe and pump damage as well as costly repairs with these durable buffers against the damaging effects of water hammer and pulsation from any positive displacement pump.

DETAILS

- Chargeable air control: no need for constant pressurized air source
- Carbon steel tanks painted blue; stainless steel tanks unpainted
- 1/2" NPT drain connection on inlet flange
- 1/2 NPT PSV/instrumentation connection on inlet flange
- Anti-extrusion button replaces inlet screen to prevent bladder protrusion without clogs or flow restriction

SENTRY™ DAMPENER AIR CONTROLS

Type	Description	Max Pressure	Installation
ADJUSTABLE 	Assembly is mounted on a single port with a self-relieving regulator to set dampener pressure. Includes a gauge and one-way brass check valve. Compressed air line must be permanently attached to the regulator. Regulator allows for an easy, convenient method to adjust dampener pressure during system pressure changes.	150 psi (10.3 bar)	Install dampener within 10 pipe diameters of pump discharge. Connect to a constant source of air. DO NOT USE OXYGEN. Charge dampener to 80% of operating pressure. Adjust dampener psi to minimize pulse level.
AUTOMATIC 	Gauge mounted on a side port, valve assembly on the center port, one-way brass check valve connected to an internal poppet valve assembly. (Poppet valve located in the nonwetted portion of the dampener to accomodate for an increase in system pressure). As system pressure increases, bladder is pushed further up into the dampener until it makes contact with the internal valve which then opens, allowing compressed air to enter the dampener. The dampener automatically adjusts as system pressure fluctuates and resets, ready to restart along with system.	150 psi (10.3 bar)	Install dampener within 10 pipe diameters of pump discharge. Connect to a constant source of air. DO NOT USE OXYGEN. When the pump is started, the dampener gauge will read system pressure. No further adjustments are needed.
CHARGEABLE 	Standard chargeable model has a gauge and Shrader-type charging valve on separate ports to pressurize and hold dampener pressure. The *V Model* assembly has a machined stainless steel charging valve and seal for rugged leak-proof operation in corrosive environments. No permanent source of compressed gas is required. Gas fill valve allows dampener to be manually bled or charged to the required pressure setting.	15,000 psi (1034.2 bar)	Install dampener within 10 pipe diameters of pump discharge or valve, depending on use. Charge dampener to recommended percentage of system operating pressure with compressed air or clean dry Nitrogen. DO NOT USE OXYGEN.
INLET STABILIZER 	The inlet stabilizer air control accomodates pressure or vacuum settings and is adjustable for suction lift or positive inlet conditions. Air control consists of a compound pressure gauge, a pressure/vacuum tight ball valve, and a venturi valve. Compressed air passes through the venturi valve at high speed, creating a low pressure area that evacuates air from the stabilizer (internal vacuum). Conversely, when the air flow through the venturi valve is diverted into the stabilizer, a pressure charge results.	30 inHg 30 psi (2 bar)	Install inlet stabilizer within 10 pipe diameters of pump inlet. Use a compressed air line and air chuck to pressurize or create a vacuum. DO NOT USE OXYGEN. For suction lift, vacuum charge to 5-7 inHg. For flooded suction charge to 50% of static inlet pump pressure.

US PATENT 10,353,409

HYBRID VALVE™

BACK PRESSURE VALVE + PULSATION DAMPENER

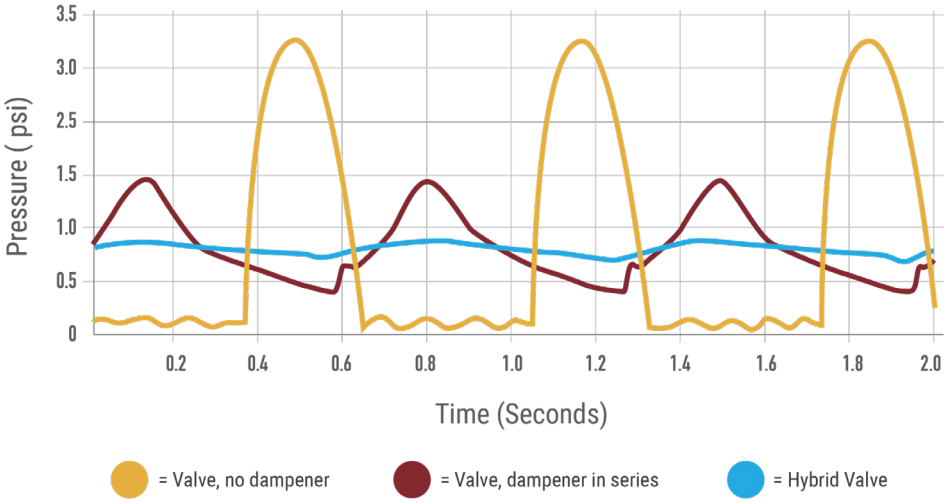
Standard back pressure valves were not designed to work with dampeners. As pressure varies in the dampener, the back pressure valve negates the dampening effect by opening and closing before the dampener is able to capture a full pulse. By combining the functionality of a pulsation dampener and back pressure valve into a single piece of equipment the performance of each component is optimized.

The quick opening and closing of a standard back pressure valves also creates too much flow (gain), resulting in inefficiency and chatter.

Blacoh's Hybrid Valve with patented flow stabilization technology ensures maximum dampening, applies continuous back pressure, and acts as an anti-siphon valve to create a smooth laminar flow with no valve chatter.

PERFORMANCE YOU CAN SEE

Tests performed using only a back pressure valve showed no improvement in fluid flow (yellow line in graph below). Fluid flow improves significantly with a pulsation dampener in series (shown in red), but the dampener is not operating at peak efficiency. Nothing matches the outstanding results when the back pressure valve and dampener are replaced with the single construction Hybrid Valve (shown in blue).



US PATENT 10,353,409

HYBRID VALVE™

PULSATION DAMPENER / BACK PRESSURE VALVE

Housing Material	Connection	Dampener Bladder	Valve Diaphragm	Inlet Type	Max Pressure	Air Control Type
CPVC Polypropylene PVC PVDF Stainless Steel (Wetted)	0.25” (8mm) 0.375” (10mm) 0.5” (15mm)	Buna-N EPDM Hypalon Neoprene PTFE Santoprene Viton	PTFE	FNPT BSP ANSI Flange Union	150 psi (10.3 bar)	Chargeable

CONFIGURATOR

Series	Connection	Valve Body/ Dampener Housing	Dampener Bladder/ Valve Diaphragm	Valve Spring	Inlet Type
H10	025	CV	B	L	SW
	0.25” (025)	PVC/PVC (VV)	Buna-N/PTFE (BT)	5-50 psi (L)	FNPT (NPT)
	0.375” (038)	CPVC/PVC (CV)	EPDM/PTFE (ET)	5-150 psi (none)	BSP (BSP)
	0.5” (050)	CPVC/CPVC (CC)	Hypalon/PTFE (HT)		Socket Weld 1/2” (SW)
		PVDF/PVC (KV)	Neoprene/PTFE (NT)		Flange 1/2” (F)
		PVDF/PVDF (KK)	PTFE/PTFE (TT)		Union 1/2” (U)
		Poly/PVC (PV)	Santoprene/PTFE (WT)		
		SS/PVC (SV)	Viton/PTFE (VT)		

US PATENT 11,194,352

SENTINEL™ VALVES

PRESSURE RELIEF VALVES

Pressure Relief Valves—also called safety valves, bypass valves, pump relief valves, or pump safety valves—protect pumps, systems, and tanks from excessive pressure. Prevent damage, reduce the risk of cavitation, and increase personnel wellbeing.

BACK PRESSURE VALVES

Back Pressure Valves—also known as loading valves or anti-siphon valves—play a crucial role in pump application by controlling the pressure on the discharge side of a pump. Prevent premature component wear, improve safety, enhance efficiency, and support multi-pump systems.

NO MORE CHATTER

Most back pressure valves are based on a pressure relief design where the valve is normally closed. When a set pressure point is reached, the valve opens quickly with maximum flow to relieve pressure. This action doesn't work well for back pressure valves that need to flow continuously to hold pressure upstream. When the valve opens quickly, pressure upstream drops rapidly and the valve slams closed. The sudden stop in flow causes a pressure spike that forces the valve open again.

In a back pressure valve application, this cycle occurs many times per second, creating a loud, chattering valve with inferior performance and a shorter service life.

Blacoh's patented valves with flow stabilization technology meter flow when the valve opens to minimize the pressure drop that initiates this cycle. The result is a valve that doesn't chatter, performs better, and lasts longer.

US PATENT 11,194,352

SENTINEL™ VALVES

BACK PRESSURE VALVES

CONFIGURATOR

Configuration	Size	Body Material[1]	Diaphragm	Inlet Type	Spring Pressure	Valve Top
BP	050	PVC	T	BSP	L	PVC
2 Port 180º (BP)	0.25” (025)	PVC (PVC)	PTFE (T)	NPT (none)	5-50 psi (L)	PVC (PVC)
2 Port 90º (BP90)	0.375” (038)	Polypropylene (PP)		Socket Weld (SW)	5-150 psi (none)	316L Stainless Steel (SS)[6]
	0.5” mini (049)[2]	CPVC (CPVC)		BSP (BSP)	5-250 psi (M)[4]	CPVC (CPVC)
	0.5” std (050)	PVDF (PVDF)		150# Flange (F)[3]	50-350 psi (H)[5]	
	0.75” (075)	316L Stainless Steel (SS)		Union (U)		
	1” (100)					
	1.5” (150)					
	2.0” (200)					

[1] Additional materials available upon request.
[2] 0.5”, 288 GPH, 14 GPM
[3] 300# flange standard on 50-350 psi high pressure valves.
[4] Valves up to 1” only.
[5] Metal valves only.
[6] Standard on 50-350 psi high pressure valves. Available on other valves on request.

BACK PRESSURE VALVES

Flow at 150 psi pressure drop across valve

Size	Pulsating GPH (US)	Continuous GPM (US)
0.25”	240	12
0.375”	260	13
0.5”	288	14
0.5”	600	30
0.75”	640	32
1”	710	36
1.5”	1500	75
2”	2000	100

US PATENT 11,194,352

SENTINEL™ VALVES

PRESSURE RELIEF VALVES

Valves up to 1” are 3-port standard
Valves larger than 1” are 2-port standard

CONFIGURATOR

Configuration	Size	Body Material[2]	Diaphragm	Inlet Type	Spring Pressure	Valve Top
PR	050	PVC	T	BSP	L	CPVC
3 Port (PR)	0.25” (025)	PVC (PVC)	PTFE (T)	NPT (none)	5-50 psi (L)	PVC (none)
2 Port 180º (PR2P)	0.375” (038)	Polypropylene (PP)	EPDM (E)	Socket Weld (SW)	5-150 psi (none)	316L Stainless Steel (SS)[6]
2 Port 90º (PR90)	0.5” mini (049)[1]	CPVC (CPVC)	Viton (V)	BSP (BSP)	5-250 psi (M)[4]	CPVC (CPVC)
	0.5” std (050)	PVDF (PVDF)		150# Flange (F)[3]	50-350 psi (H)[5]	
	0.75” (075)	316L Stainless Steel (SS)		Union (U)		
	1” (100)					
	1.5” (150)					
	2.0” (200)					

PRESSURE RELIEF VALVES

Flow at 150 psi pressure drop across valve

Size	Pulsating GPH (US)	Continuous GPM (US)
0.25”	560	28
0.375”	620	31
0.5”	660	33
0.5”	1240	62
0.75”	1260	63
1”	1300	65
1.5”	3000	150
2”	4300	215

[1] 0.5”, 660 GPH, 33 GPM
[2] Additional materials available upon request
[3] 300# flange standard on 50-350 psi high pressure valves.
[4] Valves up to 1” only.
[5] Metal valves only.
[6] Standard on 50-350 psi high pressure valves. Available on other valves on request.

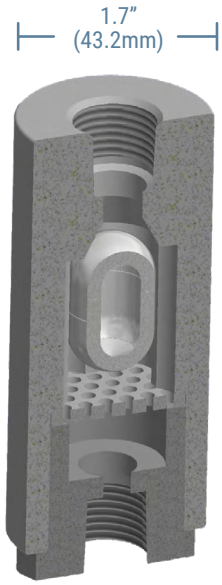
Return to TOC

SENTINEL™ AUTOMATIC DEGASSING VALVES

Material	Connection	Connection Type	Max Pressure
CPVC PVC PVDF	0.5” (15mm)	FNPT BSP Socket Weld Union	150 psi (10.3 bar)

All components are constructed of the same material for maximum chemical and thermal compatibility.

Internal mesh secures float in place and filters out larger particles.



CONFIGURATOR

Series	Connection Size	Material	Connection Type
DG	050	PVC	SW
	0.5” (050)	CPVC (CPVC)	FNPT (NPT)
		PVC (PVC)	BSP (BSP)
		PVDF (PVDF)	Socket Weld (SW)
			Union (U)

Return to TOC

SENTINEL™ NORMALLY CLOSED SHUTOFF VALVE

Housing Material	Shaft Material	Connections	Connection Type	O-Ring	Control Pressure	Max Pressure	CV Factors
6061-T6 Anodized Aluminum	300 Series Stainless Steel	0.75” Process (20mm) 0.125” Control Port (3mm)	NPT	Buna	> 40 psi up to 100 psi	150 psi (10.3 bar)	Size 3/4” NPT: Coefficient of Flow 14.7

SENTINEL Normally Closed Shutoff Valves offer an excellent high flow coefficient and a low pressure drop that equates to overall faster and smoother fluid flow. Valves are pneumatically controlled and use an internal piston to allow or prevent air or fluid flow. The normally closed valve opens when air pressure is applied to the pneumatic control port.

GAUGE GUARDS

SENTINEL™ DIAPHRAGM SEALS

Series Material	Housing Material	Bladder Material	Inlet Size	Inlet Type	Max Pressure	Estimated Shipping Weight	Certifications & Testing
PLASTIC 	CPVC Polypropylene PVC PVDF	EPDM PTFE Viton	0.25” (8mm) 0.5” (15mm) 0.75” (20mm)	FNPT BSP ANSI Flange Socket Weld Tri-clamp Union	200 psi (13.7 bar) PVDF 250 psi (17.2 bar)	1 to 4 lbs (0.4 to 1.8 kg)	NSF ARRA 3.1 Cert Material Cert Cert of Origin Customer Specified
METAL 	Alloy 20 Stainless Steel				1000 psi (68.9 bar)		

Wide variety of gauge options with gauge accuracy of +/- 2% or better full deflection.

Models available with no gauge, custom fills, and factory installed instrumentation provided by customer.

Series	Wetted/Non-Wetted
CPVC PP PVC PVDF A20 SS	CPVC Polypropylene PVC PVDF Alloy 20 Stainless Steel

Return to TOC

SENTINEL™ CALIBRATION COLUMNS

CONFIGURATOR

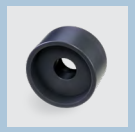
Material	Size & Connection	Cap Options[1]	End Cap Material[2]	Connections	O-Ring Material
CP	500	L		NPT	
PVC (CP)	100 mL/0.5" (100)	Sealed (S)	PVC	NPT	EPDM (E)
Glass (CG)	250 mL/0.5" (250)	Loose (L)	CPVC	Socket Weld (SW)	Viton (none)
	500 mL/0.75" (500)	Removable (R)	Polypropylene (PP)	BSP	
	1000 mL/0.75"(1000)		PVDF	150# Flange (F)	
	2000 mL/1" (2000) [1]		Stainless Steel (SS)	Union (U)	
	4000 mL/1" (4000) [1]				
	10000 mL/2" (10K) [1]				
	20000 mL/2" (20K) [1]				

[1] PVC columns only
[2] Glass columns only

PVC Columns

PVC calibration columns feature three top end cap options:

SEALED
Glued to the cylinder for permanent vent connection. Used in applications with positive suction head.



REMOVABLE
Cap sealed with O-ring for easy removal for cleaning. Used in applications with positive suction head.

LOOSE
Cap acts as dust cover in applications with no positive suction head. Cylinder is filled from the top.

Borosilicate Glass Columns

Glass calibration columns have threaded end caps offered in a variety of materials, two sealing O-rings, and a shield to protect the inner glass tube and calibration scale.

Return to TOC

SENTINEL™ INJECTION QUILLS

Material	Connection	Connection Type	O-Rings	Quill Length	Max Pressure
Polypropylene PVC PVDF Stainless Steel	0.5” (15mm) 0.75” (20mm) 1” (25mm)	FNPT	EPDM Viton	4” Standard Custom lengths available on request.	150 psi (10.3 bar)

CONFIGURATOR

Series	Material	Connection Size	O-Ring	Quill Length[1]
IQ	SS	075	E	
	Polypropylene (PP)	0.5” (050)	EPDM (E)	custom[2]
	PVC (V)	0.75” (075)	Viton (V)	
	PVDF (K)	1” (100)		
	Stainless Steel (SS)			

[1] Leave blank unless specifying custom quill length
[2] Custom length in inches

Return to TOC

SPILLSTOP™

LEAK PREVENTION & SPILL CONTAINMENT

Housing (Wetted)	Lid (Non-Wetted)	Internal Float	Options	Estimated Shipping Weight	Certifications & Testing
Polypropylene PVC PVDF Stainless Steel Hastelloy C	Noryl PVDF Stainless Steel TFE Coated SS	Polypropylene Stainless Steel TFE Coated SS	Pnuematic Whistle Pneumatic-to-Electric Switch Additional Shutoff Valves	25 - 55 lbs (11.3 - 25.0 kg)	ATEX ARRA 3.1 Cert Material Cert Cert of Origin

The fully pneumatic SPILLSTOP system attaches directly to the exhaust of an AODD pump. When the pump fails, SPILLSTOP safely captures leaked product and automatically shuts down failed pumps to avoid costly product loss and prevent hazardous spills. Optional warning alarm and backup pump switchover further minimize system downtime for maximum productivity.

Series	Wetted/Non-Wetted/Float
SPS-10	Polypropylene / Noryl / Polypropylene
SPS-11	PVC / Noryl / Polypropylene
SPS-20	Stainless Steel / Noryl / Stainless Steel
SPS-21	Stainless Steel
SPS-30	PVDF / Noryl / Stainless Steel
SPS-31	PVDF / PVDF / Stainless Steel
SPS-33	PVDF/ PVDF / TFE Coated SS
SPS-81	Hastelloy C / TFE Coated SS
SPS-82	Hastelloy C / Stainless Steel

REFERENCE

TESTING & CERTS

Material Certification	Parts	Item Number
3.1 (EN10204) Certification	Wetted Housing (Metal)	DOC-CERT 3.1-W
	Wetted/Nonwetted Housing (Metal)	DOC-CERT 3.1-WN
3.1 Certification (EN 10204), Wetted/Nonwetted w/Hydrotest	Wetted/Nontwetted/Hydrotest	DOC-CERT 3.1-H
MTR - Chemicals & Heat Number, Wetted Housing	Wetted Housing (Metal)	DOC-MTR-MTL-W
MTR - Chemicals & Heat Number, Wetted/Nonwetted Housing	Wetted/Nonwetted Housing (Metal)	DOC-MTR-MTL-WN
Material ID & Certificate of Conformance (NO MTR)	Sentry Unit	DOC-MC-SENTRY
Material ID & Certificate of Conformance (NO MTR)	SPILLSTOP Unit	DOC-MC-SS
Material ID & Certificate of Conformance (NO MTR)	Diaphragm Seal (Gauge Guard)	DOC-MC-GG
Material ID & Certificate of Conformance (NO MTR)	Bladder	DOC-MCB
Material ID & Certificate of Conformance (NO MTR)	Wetted/Nonwetted Housing	DOC-MCWN
Material ID & Certificate of Conformance (NO MTR)	Wetted Housing, Bladder	DOC-MCWB
Material ID & Certificate of Conformance (NO MTR)	Wetted, Nonwetted Housing, Bladder	DOC-MCWNB
CE, Category 1, Group 1	Various	DOC-CE1

Testing & Engineering	Parts	Item Number
Standard Unit Test Certification	All Units	DOC-TEST CERT
Hydrostatic Test & Certificate	All Units	DOC-HYDRO
XRay/Radiography & Dye Penetrant Test	Metal Flange Welds	DOC-XRAYDYE
Dye Penetrant Test	Metal Flange Welds	DOC-DYE
XRay/Radiography	Metal Flange Welds	DOC-XRAY
Positive Material Identification (PMI)	Metal Housings	DOC-PMI
Bolt Tensile Test Report	Bolts	DOC-BOLT
Customer or Third-Party Inspection	Consult Factory	
ASME Calculations	Consult Factory	

Order Documentation	Parts	Item Number
Certificate of Origin	All	DOC-COO
Certificate of Conformance to PO	Any Order	DOC-COC
EX ATEX Declaration of Conformity	All ATEX Units	
EC PED Declaration of Conformity	All PED Units	

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