



A collection of various industrial valves and fittings, including ball valves, gate valves, and elbows, displayed against a white background. The components are made of polished metal and feature black handles and actuators.

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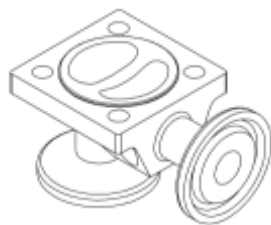
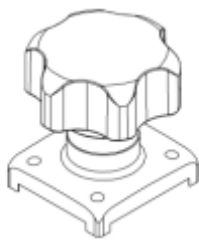
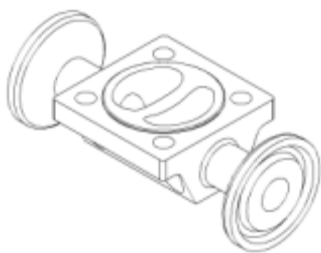


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Aquasyn California LLC

A New Standard in High Purity Diaphragm Valves

Since its inception in 1996, Aquasyn's goal has been to break new ground, not retrace the steps of others. Our extensive process engineering and manufacturing experience has enabled us to provide the dynamic biotech and pharmaceutical markets with standard, as well as customized, valves and associated components which are highly innovative and of uncompromising quality.

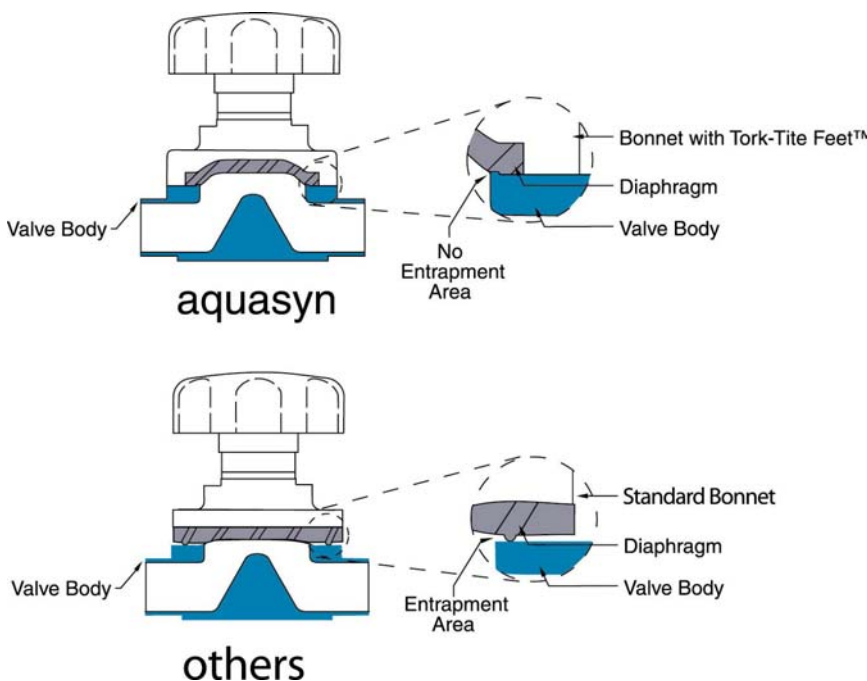


Aquasyn does not just offer an industrial diaphragm valve that has been converted to meet industry requirements, but products which are conceived and executed specifically to meet the needs of the bio-pharmaceutical industry. Our proprietary bonnet design, Ultraz[®] high performance diaphragm, the Valbow[®] and Sample Bottle Assembly are just a few of the many standard products developed by Aquasyn to resolve unique process problems.

We are committed to accommodate your ideas like no other high purity valve company can.

It's no wonder our customers consist of the biggest names in the industry.

The Aquasyn Difference



Tork-Tite[®] Feet

Most diaphragm valve manufacturers locate the principle seal on the diaphragm itself, away from the process stream, creating a ledge that can result in the entrapment of process fluids. Aquasyn machines the sealing ring on the valve body at the intersection of the flow chamber, leaving fewer places for process fluids to remain during cleaning. Additionally, our patented Tork-Tite[®] feet at the bonnet corners hold the diaphragm in a fixed position, with controlled compression. A zero leakage seal is achieved while preventing extrusion of the diaphragm into the flow chamber. These unique features provide the benefits of minimal entrapment potential, consistent, repeatable flow characteristics and extended diaphragm life.

Biotech Valves

Applications

Aquasyn small frame Biotech valves utilize a common valve body for 1/4", 3/8" and 1/2" nominal sizes. They effectively provide a compact alternative to full sized valves on bioreactors, filtration and chromatography skids, freeze-thaw and other systems where available space is at a premium, with no sacrifice in performance. Our fractional sized valves also share all of the same features as our standard sized valves.



Unique Options

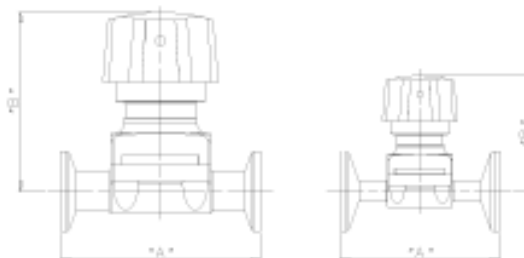
Custom built hybrid valves and assembly fabrications incorporating fractional valves are just one of Aquasyn's areas of expertise. No other company can match the footprint, execution and quality of Aquasyn products in this very specialized area.

Micro-Bio Series Valves

Ultra Compact Performance

Recent developments in tangential flow filtration systems, small-scale bioreactors, chromatography skids and low-flow sampling applications have brought about numerous requests for smaller valve sizes. As part of our ongoing commitment to provide the industry with application specific, state-of-the-art products, Aquasyn has introduced the Micro-Bio series valve. Roughly the size of an egg this valve is 40% smaller than our standard Biotech series valves.

As with our Biotech series valves, the Micro-Bio utilizes a common sized body but offer the added advantage of miniature 1/8", 3/16" and 1/4" nominal diameters. The Micro-Bio also shares the same inherent quality and features of our other valves, such as Tork-Tite® feet, integral sealing ridge on the body, a wide variety of materials of construction, surface finishes, end connections and other options.



| Valve Type | "A" | "B" |
|------------------|-------|-------|
| Biotech Series | 2.50" | 2.25" |
| Micro-Bio Series | 2.00" | 1.44" |

Two-Way Valves

An Industry Standard

The standard Aquasyn two-way valve is available in sizes 1/4" to 6" and can be supplied in any number of configurations with options involving body type, diaphragm type, end connections and surface finish. Whether combined with our manual bonnets featuring smooth operating high temperature plastic handwheels or our pneumatic actuators, Aquasyn's innovative design capabilities set us apart.

Please see ordering information on page 16 for a range of options or contact us with any special requirements you may have.



Quality

Our two-way weir type diaphragm valves feature robust construction, precision machining and state of the art surface finishes, with ASME-BPE compliant chemistry.

Machining

All of Aquasyn's two-way and special configuration valve bodies are machined from 316L austenitic stainless steel bar stock. No castings are used whatsoever.

Traceability

Aquasyn valves are fully traceable with Material Test Reports (MTRs) and Heat Numbers provided as standard procedure.



Please ask us how our extensive custom design and fabrication capabilities can assist you in providing unique solutions for your process requirements.

Features

- BPE Compliant machined bar stock bodies with controlled Sulfur (0.005-0.010%) Ferrite < 0.5%
- Integral valve body sealing ridge prevents excessive entrapment of process media
- Sizes from 1/4" to 6" provide process application flexibility
- Exterior body surfaces radiused and sloped promote cleanability by wash-down or COP methods
- Fully traceable bodies insure ease of validation/documentation
- Drain angle marks etched on end connections insure self-draining alignment
- Surface finishes available from 25Ra to 5Ra, mechanical and electropolished
- Exotic materials including Hastelloy¹ AL6XN² and Titanium available upon request
- Hygienic clamp, butt weld, orbital weld and special end connections available

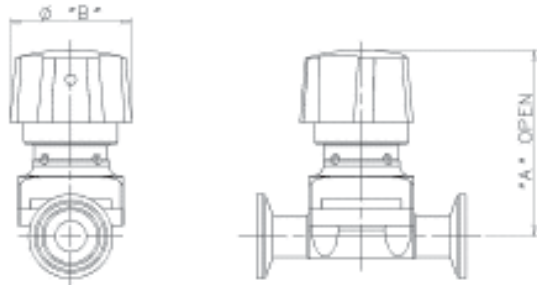
¹Hastelloy is a trademark of Haynes International
²AL6XN is a trademark of Allegheny Ludlum

Manual Bonnet Assemblies



Trouble Free

Aquasyn bonnets are designed and manufactured from stainless steel to provide long, trouble free service. All internal parts are machined to exacting tolerances for smooth and consistently reliable operation. Our patented Tork-Tite® feet on the bonnet corners and compressors, which are precisely machined and finished to match the profile of the weir on the valve body, insure a fixed diaphragm position to provide consistent zero leakage closure and repeatable flow control characteristics.



Dimensions

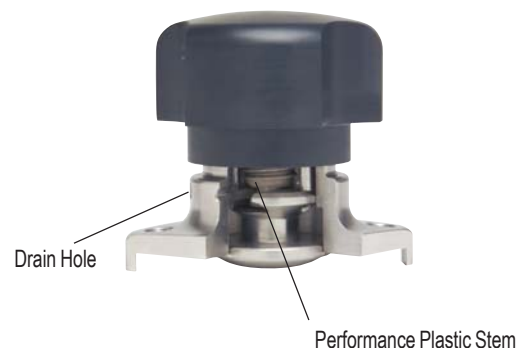
| Size | "A" | Ø "B" |
|---------|-------|-------|
| ¼" - ½" | 2.25" | 1.25" |
| ¾" | 3.00" | 2.00" |
| 1" | 4.25" | 3.20" |
| 1½" | 5.63" | 4.20" |
| 2" | 7.00" | 5.00" |

Features

- Readily cleanable exterior
- Fully autoclavable
- Patented Tork-Tite® feet provide consistent fixed diaphragm position
- Stainless steel internals
- Ergonomic performance plastic handwheel
- Fully formed compressor exactly matches weir profile for tight shut-off, smooth operation
- Custom bonnet options include: O-ring sealed, COP service, submersible and other specials
- Special stem threading options available for manual flow control
- Fixed internal travel stops
- Adjustable travel stop available

Submersible Bonnet

The Aquasyn patent-pending submersible bonnet assembly has been developed to meet the needs of recent developments in biopharm cleaning protocols. Designed to provide trouble free performance in demanding COP applications, these bonnets are fully drainable, autoclaveable, and incorporate a non-galling performance plastic stem. Available in size ¼" through 2", the bonnet provides a compact, lightweight solution to complement Aquasyn's range of diaphragm valves.

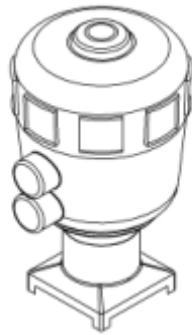


Pneumatic Valve Actuation



Features

- Compact lightweight design
- Choice of spring return or double acting operation
- Selected limit switch options available
- Banjo mount solenoid options available
- NAMUR adaptor available
- High cycle life
- Integral controlled travel stop



Performance

As with other Aquasyn components, our pneumatic actuators provide design and construction which meet or exceed industry standards. The actuators feature lightweight performance plastic housings, precision stainless internals, and O-rings machined and molded to tight tolerances. Only high quality materials are used for long, trouble free performance.

Control

Like our manual bonnets, all actuated bonnets feature our patented Tork-Tite® feet and cover a complete range of automation requirements from basic on/off service to fine modulating control.



Positioner

The positioner serves to position pneumatically actuated diaphragm valves.

The positioner is an electropneumatic position controller for the pneumatically actuated

continuous diaphragm valve. The device includes the following main function groups: a feedback/positional transducer, an electropneumatic system and a microprocessor electronic system. The feedback/positional transducer measures the actual position of the continuous valve. The microprocessor electronic system continuously compares the actual position (actual valve) with a desired position value that was preset via the standard signal input and supplies the result to the position controller. If an error exists, the electropneumatic system causes the actual position to be appropriately corrected.



Stroke Limiter



Electrical Position Feedback



Intrinsically Safe Control On/Off Head



Electrical Feedback Switch



Manual Override

Sterile Access/GMP Combinations

Capabilities

Aquasyn has the unique capability to craft Sterile Access valves with any conceivable valve-to-valve or valve-to-fitting configuration within the industry, in both traditional valve-to-valve or block body styles. Our component stocking system, coupled with specially dedicated machining and polishing, also offers the added benefit of extremely fast lead times. Our fabrication, welding and polishing exhibit inherent quality to meet and exceed industry standards for drainability, minimal dead legs, surface finish and performance

Specials

No other high purity diaphragm valve company can deliver the quality and quantity of specialty products like Aquasyn can. Please call us with any special requirements that you may have, especially when you needed them yesterday!

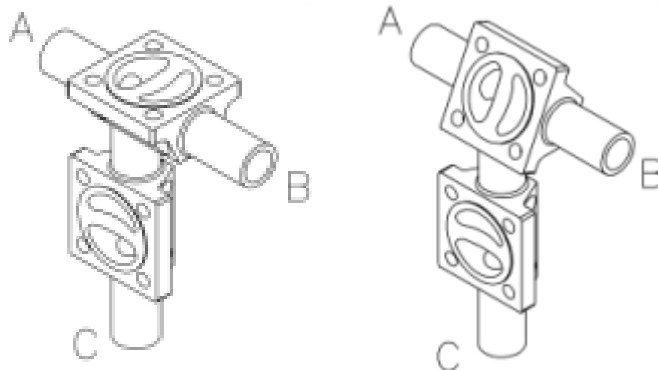


Features

- Minimized dead legs
- Maximum drainability
- Configured to specific system layout
- Selection sheet available
- Stocked components enable "made-to-order" assemblies
- Short lead times



For complete ordering information and selection chart, please see page 17-18



Zero Static Tee Bodies

Innovation

Aquasyn Zero Static block body tee valves are the premiere product of their kind in the industry. Our true Zero Static design offers the smallest footprint to facilitate installation within complicated piping geometries and is the lightest weight of any similar style body. And they can be customized into a variety of configurations, including sampling or diverting flow.



Points of Use



Features

- Minimized footprint
- Compact centerline dimensions
- Readily cleanable exterior, all surfaces sloped and radiused
- True Zero Static design
- Low pressure drop, high flow co-efficient (Cv) insures optimum performance
- Integrated sampling valves and other custom options available

Features

- True Zero Static design
- Fully machined from block
- Ergonomic design
- Completely drainable
- Readily cleanable exterior, all surfaces sloped and radiused
- Industry's smallest footprint and lightest weight
- Integrated sampling valves and other custom options available
- Stocked components enable "made-to-order" assemblies in very short lead times.

Compact

State of the art block body design, coupled with the tightest bend radii in the industry allow Aquasyn point of use valves to be easily integrated into areas where space is at a premium.

Our design provides minimal pressure drop and superior system performance. We can deliver customized and standard point of use valves on a fast track basis.



Sample Bottle Assembly



One of a Kind

Aquasyn's unique sample bottle assembly with an integrated Valbow® solves a number of process problems and has become an industry standard. It is designed for those that prefer a reusable component over one that is disposable.

Sample bottles can be provided with any number of options including different bottle sizes, color coded caps, and unusual Valbow® sample valve configurations.

Unlike other designs, Aquasyn also offers inspection and refurbishment services for our sample bottle assemblies.

Features

- Bottle sizes from 50ml to 1000ml
- Color coded caps
- Fully autoclavable
- Custom designs available
- Inventory of stocked product
- Industry standard acceptance
- Lightweight design

Valbow®

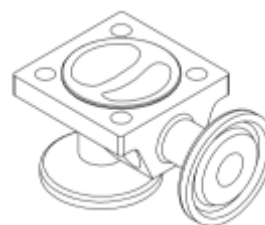


Unique Products

The Valbow® was created some years ago as a solution to one of our customer's unique problems. It has evolved into a popular Aquasyn product and is stocked in a variety of sizes. The Valbow® is uniquely suited for that one spot where nothing else will do. Whether it's a hard to reach sample valve on an R/O system, or for a directional change valve on a Bioreactor, valbows just seem to come in handy.

Features

- Unique problem solving design, unlike any other in the industry
- 90 degree angle pattern for directional changes
- Minimal hold up volume
- Sampling capability
- Hygienic clamp, orbital weld, end cap and other connections available
- Custom designs and other special options available



Instrumentation Valves

Flexibility

Aquasyn's patent-pending instrumentation valve has been designed to consolidate both a valve and pressure transducer in one unit and take advantage of minimally available space by utilizing a hybrid block body concept in conjunction with Anderson Instruments' unique CPM fitting as a base for the transducer.

The result is a very compact valve/instrument combination which takes up little more space than a single traditional diaphragm valve, as well as eliminating the need for an instrument tee. The instrument's diaphragm is positioned to one side of the valve weir to put it in direct contact with the flow of process media, and providing the advantage of eliminating the usual deadleg concerns encountered with instrument tees. The CPM fitting allows a positive, leak-proof means of instrument attachment through the use of an o-ring behind the diaphragm of the transducer and specially designed clamp arrangement.

The design is not limited to pressure measurement. It can also incorporate the following instruments:

pH
DO
ORP
Conductivity
UV/Absorbance
Turbidity
Spectrophotometer



Features

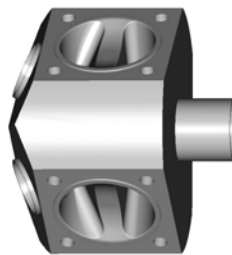
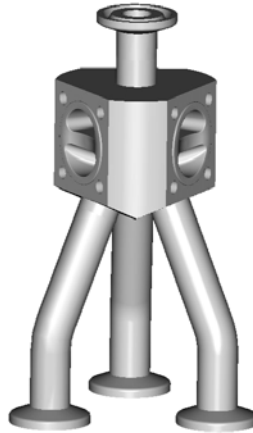
- Self draining, compact hybrid block body design
- Eliminates need for instrument tees and deadleg concerns
- BPE compliant bar stock bodies with controlled sulfur content .005-.010%
- Available in 1" and 1½" sizes
- Manual or actuated operation
- Exotic materials, choice of end connections and diaphragms available
- Optional Endress+Hauser transducer design available

Multi Valve Combinations

Flexibility

Multi combination diverter style diaphragm valves have become a cost effective solution to overcrowding in complex piping layouts. Our customers want the same quality diverter valve they have come to expect from Aquasyn's other products.

We can provide 3, 4, and 5 way diverters, for both horizontal and vertical placement. Aquasyn's actuated and manual valves offer maximum drainability and process flexibility.



Features

- Machined block construction
- Compact solutions to overcome crowded multiple valve combinations
- Decreased dead legs to remedy complex drainage problems
- Less system welds
- Optimum drainability
- Quick and effective sterilization

Custom Valve Design

Exceptional Capabilities

Customized and hybrid valve assemblies for unusual applications have been Aquasyn's forte since its inception. We don't think anyone does it quite as well. Call us when you need it done right and on time the first time.

Unique Applications

- Special end connections, configurations and material
- Innovative designs assist in providing application specific process solutions
- Sole source responsibility from concept through production
- CAE design in state of the art 3-D formats in NX-Ideas, SolidWorks & AutoCAD
- Fully detailed drawings for review and approval
- Rapid customer turnaround with concepts, drawings and production
- Exotic materials a specialty
- Expert fabrication, welding, and polishing by skilled craftsmen
- Advanced machining capabilities optimize manufacture of complex assemblies



Diaphragms



Features

- Full traceability
- Certificates of conformance supplied with all diaphragms
- Molded in the open position for long service life
- Material options include
 - EPDM
 - Fluoropolymer faced (TFM 1700)/EPDM
 - Silicone
 - Black Ultras[®] Fluoroelastomer
 - White Ultras[®] Fluoroelastomer
 - Viton
- All Aquasyn diaphragms conform to USP Class VI specifications
- Aquasyn Ultras[®] diaphragms conform to USP Class VI, ASME-BPE and FDA Title 21, CFR Part 177 indirect food additives, polymers section 177.2600- Rubber articles intended for repeated use and has passed the CFR 21 177.2600 extractables test

Precision Materials

Aquasyn's diaphragms are unlike any others in the bio-pharmaceutical industry. Our diaphragms are precision molded to tight tolerances for superior service life and crafted of approved materials which will not sacrifice the purity of the most sensitive of processes

Diaphragm Temperature Range

| | | |
|-------|---------------------------|-------|
| -70°C | EPDM RUBBER | 130°C |
| -20°C | RUBBER / PTFE | 150°C |
| -20°C | ULTRA [®] RUBBER | 160°C |

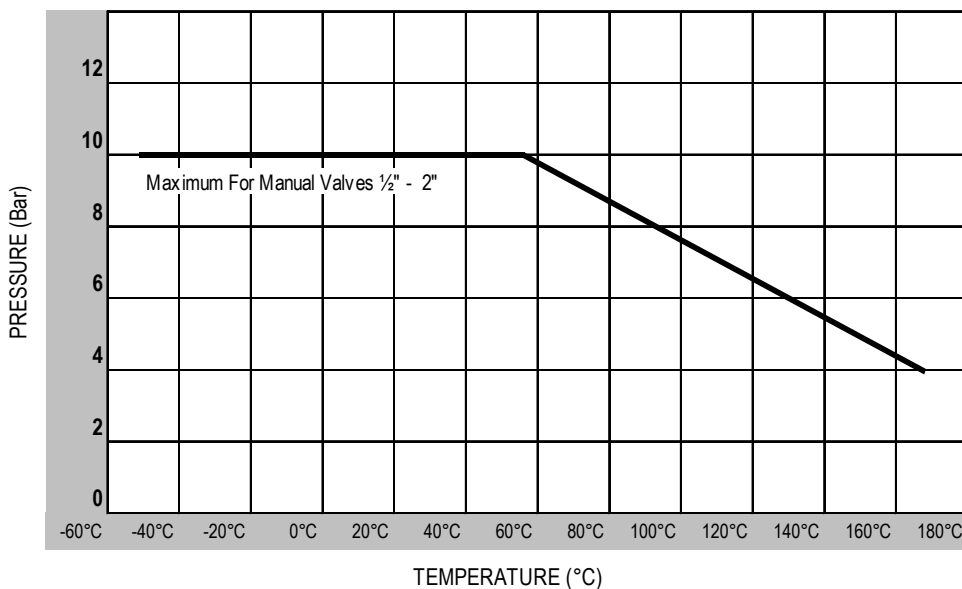
These temperature ranges are for guidance only under static conditions.

Certification

All Aquasyn diaphragms are fully traceable and are manufactured of USP and/or FDA compliant materials. Certificates of Conformance and lot traceable information are supplied as standard procedure



Valve Body Temperature/Pressure Relationship



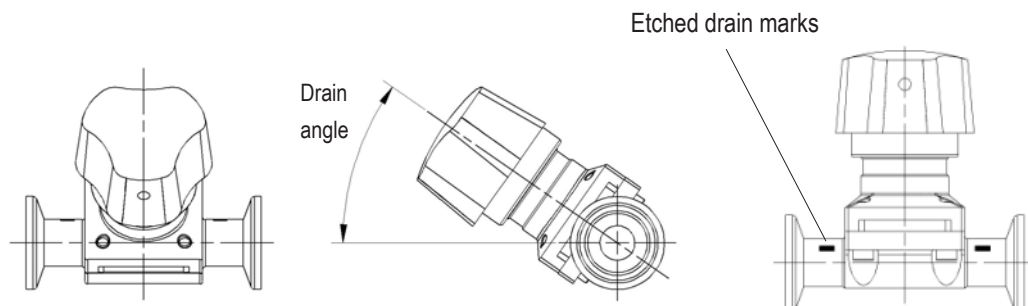
Maximum Rating Working Pressure (Bar) For Manually Operated Valves

| Valve Size | 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/2" | 2" |
|----------------|------|------|------|------|----|--------|----|
| Pressure (Bar) | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

It is essential with any valve selection to provide accurate process and operating details.

Optimum Self Drain Angles

| Valve Size | Self Drain Angle |
|------------|------------------|
| 1/4" | 41° |
| 3/8" | 30° |
| 1/2" | 25° |
| 3/4" | 18° |
| 1" | 30° |
| 1½" | 25° |
| 2" | 23° |

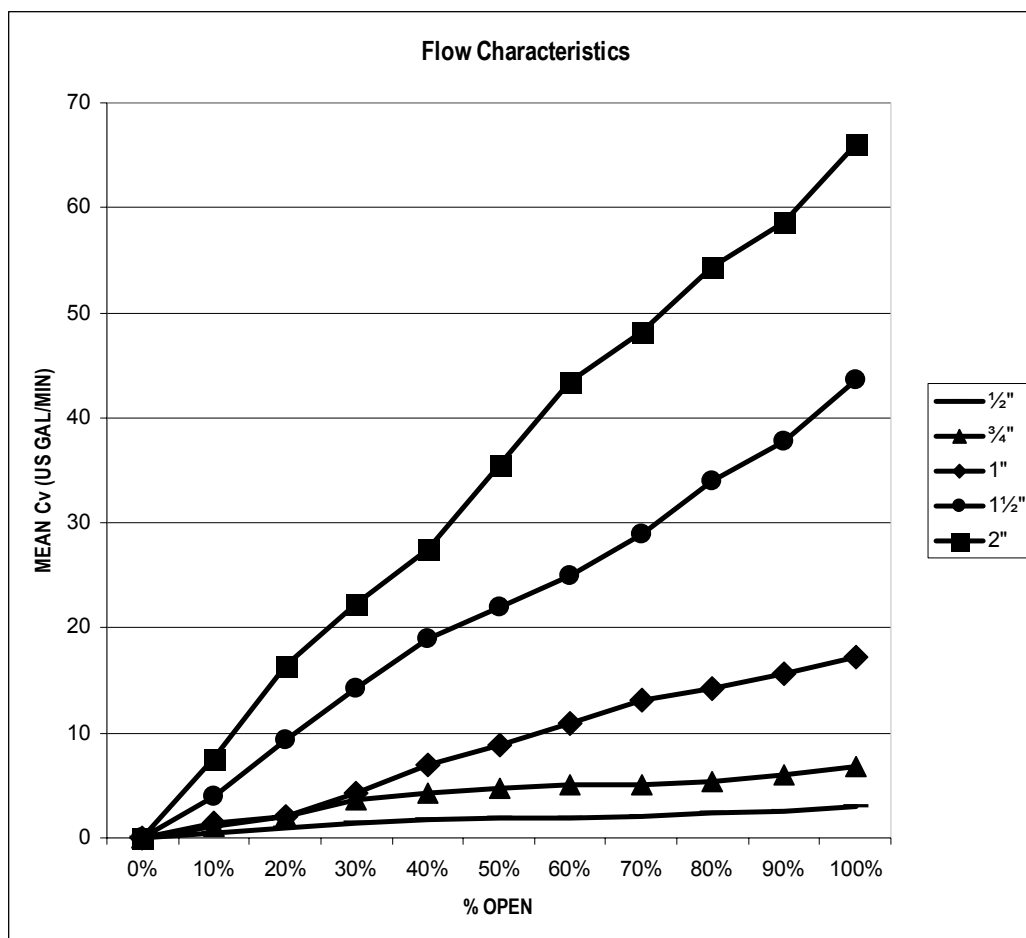


Flow Co-Efficients (Cv Data)

2-Way Valves

| Valve Size | % Open Cv Value | | | | | | | | | | |
|------------|-----------------|-----|------|------|------|------|------|------|------|------|------|
| | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| 1/2" | 0 | 0.5 | 1 | 1.4 | 1.7 | 1.9 | 1.9 | 2 | 2.3 | 2.6 | 3 |
| 3/4" | 0 | 1.1 | 2 | 3.7 | 4.3 | 4.8 | 5 | 5 | 5.4 | 6 | 6.8 |
| 1" | 0 | 1.4 | 2.1 | 4.3 | 6.9 | 8.8 | 10.9 | 13.1 | 14.2 | 15.6 | 17.3 |
| 1½" | 0 | 4 | 9.3 | 14.2 | 18.9 | 22 | 25 | 28.9 | 34 | 37.8 | 43.6 |
| 2" | 0 | 7.6 | 16.5 | 22.3 | 27.5 | 35.6 | 43.5 | 48.2 | 54.3 | 58.6 | 66 |

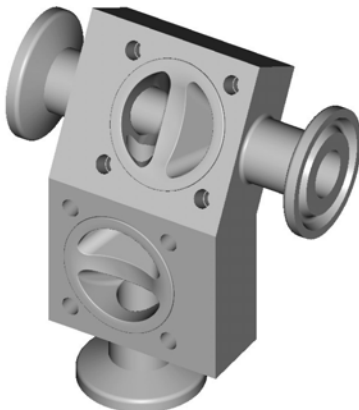
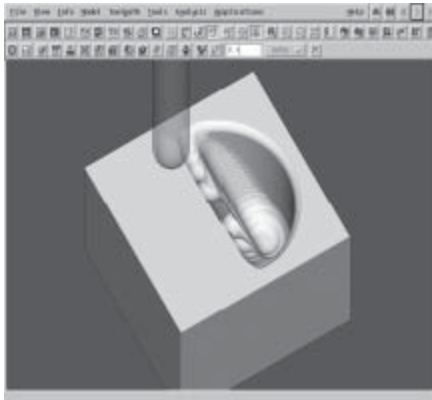
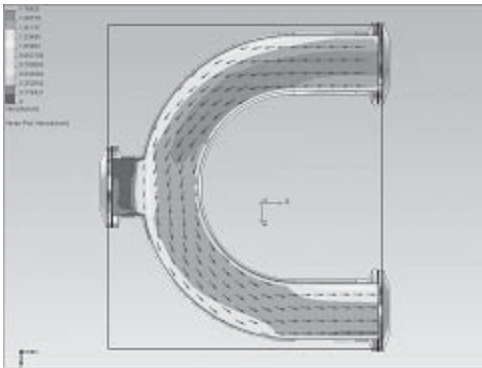
Tolerance +/- 10% Cv Units - US gallons/minute



Design and Production Capability

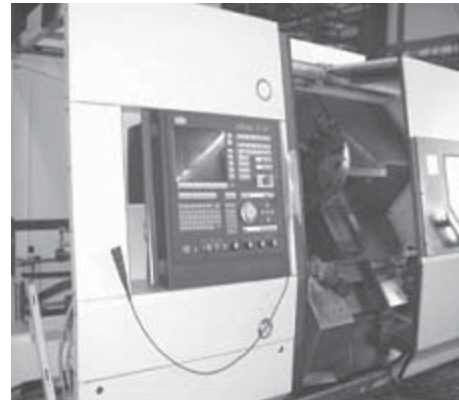
Design Capabilities

- High end CAE design
- NX-Ideas, Solidworks & AutoCAD
- CAD/CAM Software
- Computational Fluid Dynamics
- Shown here are some examples of Aquasyn's 3D Design capabilities



Production Features

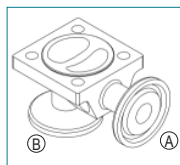
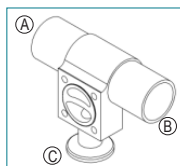
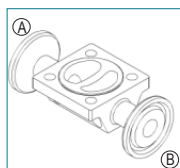
- Orbital welding
- Polishing & Electropolishing
- High Volume production capability
- State of the art 5-axis machining centers
- Aquasyn products are made in the USA, with your satisfaction as our ultimate goal



Ordering Information

Standard Valves, U-Bends, Tee Bodies, Ported Valves and Valbows®

| Type | Size | Material | Finish | Outlet A | Outlet B | Outlet C (leave blank if only 2 outlets) | Diaphragm | Operation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------|--------------------------|---------------|----------|----------|---|-----------|-----------|----------|------|---------------------|------|--------------|----|--|----|--|----|--|------|------|------|----|------|----|------|----|------|----|----|----|--------|----|----|----|--------|----|----|----|----|----|----|----|---|----------|------|------|---|------------------------|---|--------------------|---|--|----------|--------|------|------|---------|---|------|---------|---|------|---------|---|--|---------|---|--|------|---|--|------|---|------|------|---|------|------|---|---|----------|----------|----------|----------------|------|---------------|---------------------|----|------------------------|---------------------|----|------------------------|---------------------|----|------------------------|---------------------|----|------------------------|-------------------|----|----------------------|-----------------------|----|--------------------------|-------------------|----|----------------------|-----------------------|----|--------------------------|-------------------|----|----------------------|-------------------|----|----------------------|-------------------|----|----------------------|----------------|------|-------------------|-----------------------------|----|---------------|-----------------------------|----|---------------|---------------------------|----|---------------|-------------------------------|----|---------------|---------------------------|----|--|-------------------------------|----|------------------------|-------------------------|----|-----------------------|-----------------------------|----|-----------------------|--|--|-----------------------|--|--|-----------------------|--|--|-----------------------|--|--|----|--|--|----|--|--|----|--|--|----|--|--|----|--|-----------|------|------|---|------|---|----------|---|---------|---|-------|---|---|-----------|------|------------------------|----|-----------------------------|----|------------------------|----|------------------------|----|------------------------|----|-----------------------------|----|
| <table border="1"> <thead> <tr> <th>Valve Type</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>Straight Thru</td><td>A</td></tr> <tr><td>Tee Body</td><td>T</td></tr> <tr><td>Valbow</td><td>W</td></tr> <tr><td>GMP Port</td><td>GAP1</td></tr> <tr><td>Sterile Access Port</td><td>SAP1</td></tr> <tr><td>Point of Use</td><td>P1</td></tr> <tr><td></td><td>P2</td></tr> <tr><td></td><td>P3</td></tr> </tbody> </table> | Valve Type | Code | Straight Thru | A | Tee Body | T | Valbow | W | GMP Port | GAP1 | Sterile Access Port | SAP1 | Point of Use | P1 | | P2 | | P3 | <table border="1"> <thead> <tr> <th>Size</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>1/4"</td><td>04</td></tr> <tr><td>3/8"</td><td>06</td></tr> <tr><td>1/2"</td><td>08</td></tr> <tr><td>3/4"</td><td>12</td></tr> <tr><td>1"</td><td>16</td></tr> <tr><td>1 1/2"</td><td>24</td></tr> <tr><td>2"</td><td>32</td></tr> <tr><td>2 1/2"</td><td>40</td></tr> <tr><td>3"</td><td>48</td></tr> <tr><td>4"</td><td>64</td></tr> <tr><td>6"</td><td>96</td></tr> </tbody> </table> | Size | Code | 1/4" | 04 | 3/8" | 06 | 1/2" | 08 | 3/4" | 12 | 1" | 16 | 1 1/2" | 24 | 2" | 32 | 2 1/2" | 40 | 3" | 48 | 4" | 64 | 6" | 96 | <table border="1"> <thead> <tr> <th>Material</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>316L</td><td>L</td></tr> <tr><td>Hastelloy¹</td><td>H</td></tr> <tr><td>AL6XN²</td><td>A</td></tr> </tbody> </table> | Material | Code | 316L | L | Hastelloy ¹ | H | AL6XN ² | A | <table border="1"> <thead> <tr> <th>ASME BPE</th> <th>Finish</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>SFV4</td><td>10Ra/EP</td><td>1</td></tr> <tr><td>SFV5</td><td>15Ra/EP</td><td>2</td></tr> <tr><td>SFV6</td><td>20Ra/EP</td><td>3</td></tr> <tr><td></td><td>25Ra/EP</td><td>4</td></tr> <tr><td></td><td>10Ra</td><td>5</td></tr> <tr><td></td><td>15Ra</td><td>6</td></tr> <tr><td>SFV1</td><td>20Ra</td><td>7</td></tr> <tr><td>SFV2</td><td>25Ra</td><td>8</td></tr> </tbody> </table> | ASME BPE | Finish | Code | SFV4 | 10Ra/EP | 1 | SFV5 | 15Ra/EP | 2 | SFV6 | 20Ra/EP | 3 | | 25Ra/EP | 4 | | 10Ra | 5 | | 15Ra | 6 | SFV1 | 20Ra | 7 | SFV2 | 25Ra | 8 | <table border="1"> <thead> <tr> <th>Outlet A</th> <th>Outlet B</th> <th>Outlet C</th> </tr> </thead> <tbody> <tr> <td>Standard Clamp</td> <td>Code</td> <td>Autoweld Ends</td> </tr> <tr><td>1/4" Sanitary Clamp</td><td>AA</td><td>1/4" .049 wall OD Tube</td></tr> <tr><td>3/8" Sanitary Clamp</td><td>AB</td><td>3/8" .049 wall OD Tube</td></tr> <tr><td>1/2" Sanitary Clamp</td><td>AC</td><td>1/2" .065 wall OD Tube</td></tr> <tr><td>3/4" Sanitary Clamp</td><td>AD</td><td>3/4" .065 wall OD Tube</td></tr> <tr><td>1" Sanitary Clamp</td><td>AE</td><td>1" .065 wall OD Tube</td></tr> <tr><td>1 1/2" Sanitary Clamp</td><td>AG</td><td>1 1/2" .065 wall OD Tube</td></tr> <tr><td>2" Sanitary Clamp</td><td>AH</td><td>2" .065 wall OD Tube</td></tr> <tr><td>2 1/2" Sanitary Clamp</td><td>AJ</td><td>2 1/2" .065 wall OD Tube</td></tr> <tr><td>3" Sanitary Clamp</td><td>AK</td><td>3" .065 wall OD Tube</td></tr> <tr><td>4" Sanitary Clamp</td><td>AL</td><td>4" .083 wall OD Tube</td></tr> <tr><td>6" Sanitary Clamp</td><td>AM</td><td>6" .109 wall OD Tube</td></tr> <tr> <td>Step Up Clamps</td> <td>Code</td> <td>Standard Hosebarb</td> </tr> <tr><td>1/4" to 1/2" Sanitary Clamp</td><td>AP</td><td>1/4" Hosebarb</td></tr> <tr><td>3/8" to 1/2" Sanitary Clamp</td><td>AT</td><td>3/8" Hosebarb</td></tr> <tr><td>1/2" to 1" Sanitary Clamp</td><td>AY</td><td>1/2" Hosebarb</td></tr> <tr><td>1/2" to 1 1/2" Sanitary Clamp</td><td>AZ</td><td>3/4" Hosebarb</td></tr> <tr><td>3/4" to 1" Sanitary Clamp</td><td>BA</td><td></td></tr> <tr><td>3/4" to 1 1/2" Sanitary Clamp</td><td>BB</td><td>Reducing Hosebarb Code</td></tr> <tr><td>1" to 2" Sanitary Clamp</td><td>BD</td><td>3/8" to 1/4" Hosebarb</td></tr> <tr><td>1 1/2" to 2" Sanitary Clamp</td><td>BE</td><td>1/2" to 3/8" Hosebarb</td></tr> <tr><td></td><td></td><td>1/2" to 1/4" Hosebarb</td></tr> <tr><td></td><td></td><td>3/4" to 1/2" Hosebarb</td></tr> <tr><td></td><td></td><td>3/4" to 1/4" Hosebarb</td></tr> <tr><td></td><td></td><td>HK</td></tr> <tr><td></td><td></td><td>HL</td></tr> <tr><td></td><td></td><td>HM</td></tr> <tr><td></td><td></td><td>HN</td></tr> <tr><td></td><td></td><td>HP</td></tr> </tbody> </table> | Outlet A | Outlet B | Outlet C | Standard Clamp | Code | Autoweld Ends | 1/4" Sanitary Clamp | AA | 1/4" .049 wall OD Tube | 3/8" Sanitary Clamp | AB | 3/8" .049 wall OD Tube | 1/2" Sanitary Clamp | AC | 1/2" .065 wall OD Tube | 3/4" Sanitary Clamp | AD | 3/4" .065 wall OD Tube | 1" Sanitary Clamp | AE | 1" .065 wall OD Tube | 1 1/2" Sanitary Clamp | AG | 1 1/2" .065 wall OD Tube | 2" Sanitary Clamp | AH | 2" .065 wall OD Tube | 2 1/2" Sanitary Clamp | AJ | 2 1/2" .065 wall OD Tube | 3" Sanitary Clamp | AK | 3" .065 wall OD Tube | 4" Sanitary Clamp | AL | 4" .083 wall OD Tube | 6" Sanitary Clamp | AM | 6" .109 wall OD Tube | Step Up Clamps | Code | Standard Hosebarb | 1/4" to 1/2" Sanitary Clamp | AP | 1/4" Hosebarb | 3/8" to 1/2" Sanitary Clamp | AT | 3/8" Hosebarb | 1/2" to 1" Sanitary Clamp | AY | 1/2" Hosebarb | 1/2" to 1 1/2" Sanitary Clamp | AZ | 3/4" Hosebarb | 3/4" to 1" Sanitary Clamp | BA | | 3/4" to 1 1/2" Sanitary Clamp | BB | Reducing Hosebarb Code | 1" to 2" Sanitary Clamp | BD | 3/8" to 1/4" Hosebarb | 1 1/2" to 2" Sanitary Clamp | BE | 1/2" to 3/8" Hosebarb | | | 1/2" to 1/4" Hosebarb | | | 3/4" to 1/2" Hosebarb | | | 3/4" to 1/4" Hosebarb | | | HK | | | HL | | | HM | | | HN | | | HP | <table border="1"> <thead> <tr> <th>Diaphragm</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>EPDM</td><td>E</td></tr> <tr><td>PTFE</td><td>P</td></tr> <tr><td>Silicone</td><td>S</td></tr> <tr><td>Ultras®</td><td>U</td></tr> <tr><td>Viton</td><td>V</td></tr> </tbody> </table> | Diaphragm | Code | EPDM | E | PTFE | P | Silicone | S | Ultras® | U | Viton | V | <table border="1"> <thead> <tr> <th>Operation</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>Standard Manual Bonnet</td><td>16</td></tr> <tr><td>O-Ring Sealed Manual Bonnet</td><td>17</td></tr> <tr><td>Pneumatic Actuator N/O</td><td>18</td></tr> <tr><td>Pneumatic Actuator N/C</td><td>19</td></tr> <tr><td>Pneumatic Actuator A/A</td><td>20</td></tr> <tr><td>Submersible Bonnet Assembly</td><td>21</td></tr> </tbody> </table> | Operation | Code | Standard Manual Bonnet | 16 | O-Ring Sealed Manual Bonnet | 17 | Pneumatic Actuator N/O | 18 | Pneumatic Actuator N/C | 19 | Pneumatic Actuator A/A | 20 | Submersible Bonnet Assembly | 21 |
| Valve Type | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Straight Thru | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tee Body | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Valbow | W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GMP Port | GAP1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sterile Access Port | SAP1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Point of Use | P1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Size | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/4" | 04 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/8" | 06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2" | 08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/4" | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1" | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 1/2" | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2" | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 1/2" | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3" | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4" | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6" | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 316L | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hastelloy ¹ | H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Standard Clamp | Code | Autoweld Ends | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | 1/2" to 1/4" Hosebarb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3/4" to 1/2" Hosebarb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3/4" to 1/4" Hosebarb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | HK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | HL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | HM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | HN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | HP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diaphragm | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EPDM | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PTFE | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Silicone | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ultras® | U | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Viton | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operation | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard Manual Bonnet | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O-Ring Sealed Manual Bonnet | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pneumatic Actuator N/O | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pneumatic Actuator N/C | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pneumatic Actuator A/A | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Submersible Bonnet Assembly | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Examples

A 24 H 4 AG AG U 19

Straight Thru Valve

Type 2-Way Valve
Size 1 1/2"
Material Hastelloy¹
Finish 25Ra/Electropolished
Outlet A 1 1/2" Sanitary Clamp
Outlet B 1 1/2" Sanitary Clamp
Diaphragm Ultras®
Operation Actuator Normally Closed (N/C)

GAP2 08 L 8 AC AC AC P 16

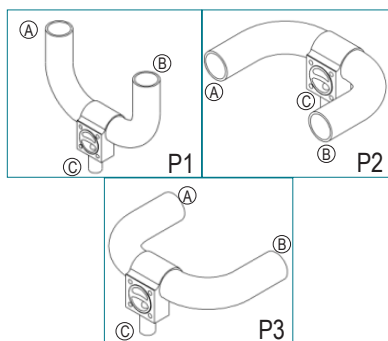
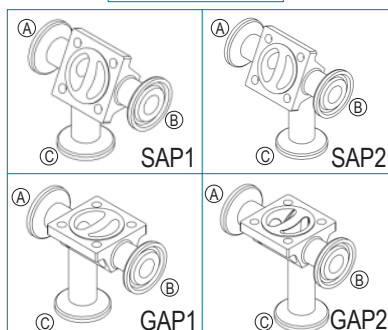
GMP Access Port

Type GMP Access Port Right Side (GAP2)
Size 1/2"
Material 316L Stainless Steel
Finish 25Ra (No Electropolish)
Outlet A 1/2" Sanitary Clamp
Outlet B 1/2" Sanitary Clamp
Outlet C 1/2" Sanitary Clamp
Diaphragm PTFE
Operation SS Manual Bonnet Assembly

P1 12 L 2 11 11 AD S 16

Point of Use Valve

Type Point of Use (Orientation 1 - 0°)
Size 3/4"
Material 316L Stainless Steel
Finish 15Ra/Electropolished
Outlet A 1" Tubing
Outlet B 1" Tubing
Outlet C 3/4" Sanitary Clamp
Diaphragm Silicone
Operation SS Manual Bonnet Assembly



¹Hastelloy is a trademark of Haynes International
²AL6XN is a trademark of Allegheny Ludlum

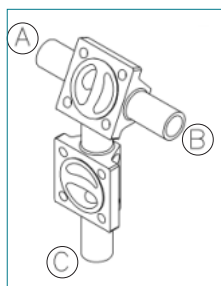
Ordering Information

Valve to Valve Combinations

| Type | 1st Valve | Material | Finish | 2nd Valve | Outlet A | Outlet B | Outlet C | Diaphragm1 | Operation 1 | Diaphragm2 | Operation 2 |
|---|--|--|----------------------|--|---|---|---|--|--|------------|-------------|
| ValveType Code | Size Code | Material Code | ASME BPE Finish Code | Size Code | Outlet A | Outlet B | Outlet C | Diaphragm Code | Operation Code | | |
| Steril Access Valve Combo see fabrication selection sheet on page 16 | SAL1 1/4" 04 SAL2 3/8" 06 SAL3 1/2" 08 SAL4 3/4" 12 SAL5 1" 16 SAL6 1 1/2" 24 SAR1 2" 32 SAR2 2 1/2" 40 SAR3 3" 48 SAR4 4" 64 SAR5 6" 96 | 316L Hastelloy ¹ AL6XN ² | L H A | 10Ra/EP 1 15Ra/EP 2 20Ra/EP 3 25Ra/EP 4 10Ra 5 15Ra 6 20Ra 7 25Ra 8 | 1/4" 04 3/8" 06 1/2" 08 3/4" 12 1" 16 1 1/2" 24 2" 32 2 1/2" 40 3" 48 | Standard Clamp Code 1/4" Sanitary Clamp AA 3/8" Sanitary Clamp AB 1/2" Sanitary Clamp AC 3/4" Sanitary Clamp AD 1" Sanitary Clamp AE 1 1/2" Sanitary Clamp AG 2" Sanitary Clamp AH 2 1/2" Sanitary Clamp AJ 3" Sanitary Clamp AK 4" Sanitary Clamp AL 6" Sanitary Clamp AM | Autoweld Ends Code 1/4" .049 wall OD Tube 17 3/8" .049 wall OD Tube 18 1/2" .065 wall OD Tube 09 3/4" .065 wall OD Tube 10 1" .065 wall OD Tube 11 1 1/2" .065 wall OD Tube 12 2" .065 wall OD Tube 13 2 1/2" .065 wall OD Tube 14 3" .065 wall OD Tube 15 4" .083 wall OD Tube 08 6" .109 wall OD Tube 00 | EPDM PTFE Silicone Ultras® Viton | Standard Manual Bonnet 16 O-Ring Sealed Manual Bonnet 17 Pneumatic Actuator N/O 18 Pneumatic Actuator N/C 19 Pneumatic Actuator A/A 20 Submersible Bonnet Assembly 21 | | |
| GMP Valve Combination see fabrication selection sheet on page 16 | HGV1 HGV2 HGV3 HGV4 VG1 VG2 VG3 VG4 | | | | | Step Up Clamps Code 1/4" to 1/2" Sanitary Clamp AP 3/8" to 1/2" Sanitary Clamp AT 1/2" to 1" Sanitary Clamp AY 1/2" to 1 1/2" Sanitary Clamp AZ 3/4" to 1" Sanitary Clamp BA 3/4" to 1 1/2" Sanitary Clamp BB 1" to 2" Sanitary Clamp BD 1 1/2" to 2" Sanitary Clamp BE | Standard Hosebarb Code 1/4" Hosebarb HA 3/8" Hosebarb HB 1/2" Hosebarb HC 3/4" Hosebarb HD Reducing Hosebarb Code 3/8" to 1/4" Hosebarb HK 1/2" to 3/8" Hosebarb HL 1/2" to 1/4" Hosebarb HM 3/4" to 1/2" Hosebarb HN 3/4" to 1/4" Hosebarb HP | | | | |

SAL1 08 L 2 08 09 09 09 E 19 E 16

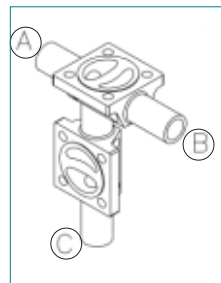
Sterile Access Valve to Valve Combination



| | |
|-------------|---------------------------------------|
| Type | Sterile Access Valve Left Side (SAL1) |
| 1st Valve | 1/2" |
| Material | 316L Stainless Steel |
| Finish | 15Ra/Electropolished |
| 2nd Valve | 1/2" |
| Outlet A | 1/2" Tubing |
| Outlet B | 1/2" Tubing |
| Outlet C | 1/2" Tubing |
| Diaphragm 1 | EPDM |
| Operation 1 | Actuator Normally Closed (N/C) |
| Diaphragm 2 | EPDM |
| Operation 2 | SS Manual Bonnet Assembly |

HGV1 16 L 7 12 AE AE AD P 16 P 16

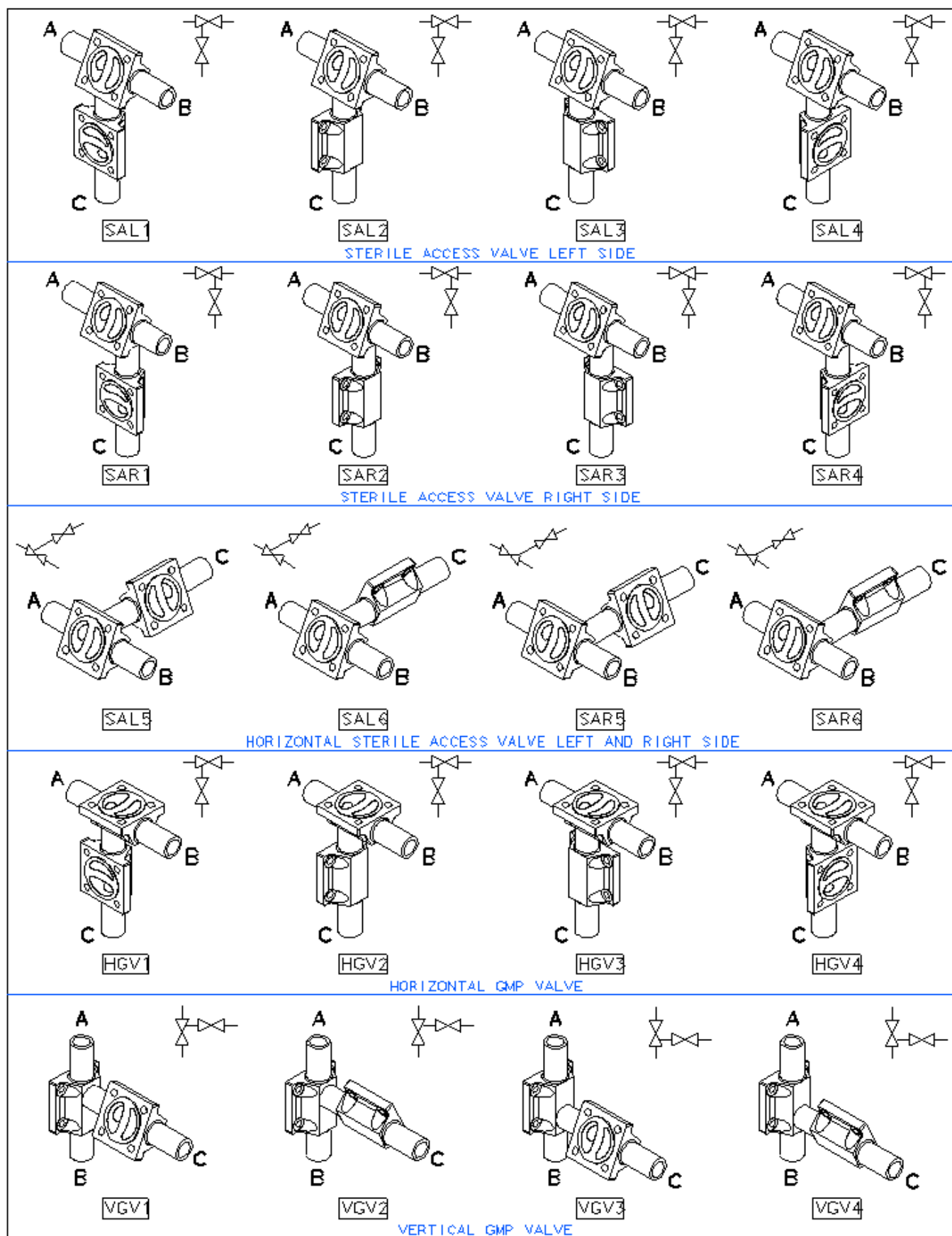
GMP Valve to Valve Combination



| | |
|-------------|-----------------------------|
| Type | Horizontal GMP Valve (HGV1) |
| 1st Valve | 1" |
| Material | 316L Stainless Steel |
| Finish | 20Ra (No Electropolish) |
| 2nd Valve | 3/4" |
| Outlet A | 1" Sanitary Clamp |
| Outlet B | 1" Sanitary Clamp |
| Outlet C | 3/4" Sanitary Clamp |
| Diaphragm 1 | PTFE |
| Operation 1 | SS Manual Bonnet Assembly |
| Diaphragm 2 | PTFE |
| Operation 2 | SS Manual Bonnet Assembly |

¹Hastelloy is a trademark of Haynes International
²AL6XN is a trademark of Allegheny Ludlum

Selection Chart



Terms and Conditions

These Terms and Conditions shall constitute the sole and exclusive Agreement ("Agreement") in regard to the goods purchased by Purchaser from Aquasyn LLC, a Nevada limited liability company ("Aquasyn").

1. Purchaser is solely responsible for determining whether the goods ordered and purchased from Aquasyn are suitable for their intended application. Aquasyn makes no representation or warranty concerning the suitability of any goods for any particular project or application. Aquasyn has no control over the actual use of the goods purchased and, therefore, shall have no liability. Purchaser shall be solely responsible and assumes all risk of loss arising out of or relating to the use of the goods purchased. Purchaser shall be solely responsible for developing a maintenance schedule for the goods purchased. Any statements by Aquasyn or its employees, representatives, consultants or advisors are only general comments and shall not constitute recommendations, representations, warranties, binding agreements or anything that would cause Aquasyn to be liable for any reason.

2. All prices exclude excise, sales, use, G.S.T., or similar taxes, freight, other delivery expenses, insurance charges and duties, all of which shall be borne by Purchaser.

Any notice canceling or rescheduling any portion of a purchase order must be in writing and, unless such notice is received by Aquasyn at least fourteen (14) days prior to the scheduled shipment date, Purchaser shall be subject to Aquasyn's standard cancellation, rescheduling and restocking charges and policies in effect from time to time.

4. Shipment shall be F.O.B. at Aquasyn's warehouse in Los Angeles County, California. Purchaser assumes all risk of loss upon delivery of the goods by Aquasyn to Purchaser or its agents or shippers at Aquasyn's warehouse. Aquasyn reserves the right to make deliveries in installments. All such installments shall be separately invoiced and paid for when due without regard to subsequent deliveries. Delay in delivery of any installment shall not relieve Purchaser of its obligation to accept remaining deliveries. Purchaser shall have seven (7) days from the date of delivery within which to notify Aquasyn of any nonconforming goods, defective materials, workmanship or shortages in the goods delivered. No goods may be returned unless the Purchaser notifies Aquasyn within said seven (7) day time period and Aquasyn authorizes the return. All returned goods must be shipped freight prepaid by Purchaser. All shipping and restocking charges on any goods improperly rejected shall be paid by Purchaser.

5. On approved credit, Purchaser shall pay Aquasyn for all goods delivered to Purchaser within thirty (30) days of delivery by Aquasyn. In the absence of approved credit, all goods shall be paid for in cash on delivery in advance unless the Purchaser and Aquasyn expressly agree otherwise in writing. All references to money amounts herein, unless otherwise specified, shall be in United States currency. All payments shall be made in United States dollars at the closing rate of exchange for the United States dollar at the primary bank of Aquasyn on the day preceding the date on which payment is made to Aquasyn as required by this Agreement. Failure to make payment pursuant to the terms provided for herein shall constitute a default by Purchaser which shall give Aquasyn the right to elect to terminate its obligation to ship further goods to Purchaser or request adequate assurances from Purchaser. If Aquasyn requests adequate assurances from Purchaser, Aquasyn shall have the sole and absolute discretion as to whether such assurances, if any, are adequate. Aquasyn reserves the right to reject orders and withhold shipment in the event Purchaser's account is past due. Payments past due shall bear interest on the daily balance at the rate of one and one-half percent (1.5%) per month (18% APR) or the maximum rate permitted by law, whichever is lower.

6. DISCLAIMER AND LIMITATION OF LIABILITY. AQUASYN GRANTS NO WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, REGARDING THE GOODS, THEIR FITNESS FOR ANY PURPOSE, QUALITY OR MERCHANTABILITY ALL OF WHICH ARE HEREBY DISCLAIMED. AQUASYN SHALL NOT BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, PUNITIVE, INCIDENTAL OR INDIRECT DAMAGES, LOST PROFITS, THE COSTS OF PROCUREMENT OF SUBSTITUTE PRODUCTS OR SERVICES HOWEVER CAUSED, OR ON ANY THEORY OF LIABILITY ARISING IN ANY WAY OUT OF THIS AGREEMENT. PURCHASER

AGREES THAT AQUASYN'S LIABILITY UNDER THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, SHALL IN NO EVENT EXCEED THE PRICE PAID BY THE PURCHASER FOR THE SUBJECT GOODS. THIS LIMITATION SHALL APPLY EVEN IF AQUASYN HAS BEEN ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY PROVIDED HEREIN.

7. Aquasyn shall not be responsible for any delays or failure to perform caused by government orders or requirements, transportation conditions, labor or material shortages, supplier delays, strikes, riots, fires, weather, acts of God, terrorist acts, or any other cause beyond the reasonable control of Aquasyn and Aquasyn's performance shall be excused and this Agreement shall be deemed suspended during the continuance of such prevention and for a reasonable time thereafter. If the output or operations of Aquasyn or its suppliers is reduced by any such cause, then Aquasyn may allocate goods among its customers in a manner and to an extent that Aquasyn deems equitable in its sole and absolute discretion.

8. The relationship of Aquasyn and Purchaser established by this Agreement is that of vendor and purchaser and nothing contained herein shall be construed so as to create a partnership, joint venture or franchisor-franchisee relationship.

9. The provisions set forth herein, may not be supplemented, modified or amended in any manner, except by an instrument in writing stating that it is a supplement, modification or amendment of these provisions and signed by each party hereto. The terms and conditions on any purchase order forms issued by Purchaser shall not be deemed to be a part of this Agreement and shall not be deemed to modify or supplement this Agreement in any way, notwithstanding the fact that Aquasyn may acknowledge or otherwise approve such purchase orders. No waiver of any of these provisions shall be deemed or constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

10. In any action arising out of or relating to the terms, conditions, interpretation, construction or enforcement of this Agreement, the prevailing party in such action shall be entitled, in addition to all other relief awarded therein, to its actual attorney's fees paid or incurred. Any and all controversies claims and disputes arising out of or relating to this Agreement, or the breach thereof, shall be settled by binding arbitration in the County of Los Angeles, State of California, in accordance with the Commercial Arbitration Rules of the American Arbitration Association then in effect. The arbitration shall be conducted by one (1) arbitrator who is a retired judge or an attorney licensed to practice law in California with at least fifteen (15) years commercial law experience. The arbitration award made in accordance with these provisions shall be final and binding and not subject to appeal. The arbitrator's award shall be in the form of findings of fact and conclusions of law. Judgment may be entered to enforce the award in any court of competent jurisdiction and the party against whom such award is made waives all rights of objection to such enforcement. The prevailing party in any arbitration shall be entitled to an award of its attorneys' fees.

11. Neither party hereto, nor any of their employees, agents or representatives has made any statements, promises or agreements verbally or in writing in conflict with the terms set forth herein. Any and all representations by either of the parties or their employees, agents or representatives made during negotiations, which representations are not contained herein, shall not be binding upon either of the parties hereto. This Agreement contains the entire agreement between the parties. Time is of the essence of this Agreement and all of the terms, provisions, covenants and conditions hereof.

12. This Agreement shall be deemed to have been made under, and shall be construed and interpreted in accordance with the laws of the State of California without reference to principles of conflicts of laws. The parties expressly disclaim the provisions of the United Nations Convention for the International Sales of Goods. The English language version of this Agreement shall be controlling for all purposes. In the event that any provision hereof is deemed to be illegal or unenforceable, such a determination shall not affect the validity or enforceability of the remaining provisions, hereof, all of which shall remain in full force and effect. The rights, duties and obligations of each of the parties shall not be assigned without the consent of all the parties.



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