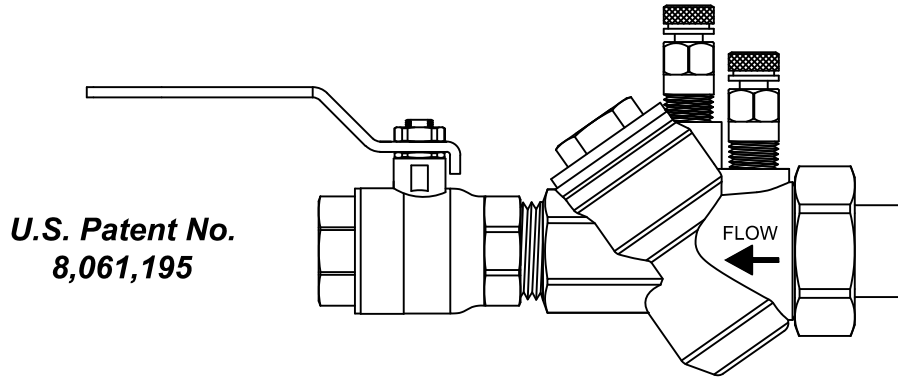




AFLB Series Specifications

Automatic Pressure Independent Flow Limiter w/ Ball Valve

- A: AFLB - ½" - 1" High
- B: AFLB - 1" High - 1½" Low
- C: AFLB - 1½" High - 2"



PRODUCT DESCRIPTION: The AFLB is an Automatic Pressure Independent Flow Limiting device, male ended by union with a brass ball valve attached, rated at 600 WOG / CWP @ 250° F. The AFLB is supplied with a stainless steel flow limiting cartridge that can be removed for cartridge exchange, if necessary. The AFLB comes standard with two pressure/temperature ports and a hanging identification tag. The ball valve end, or run-out side, is available in FNPT or SWT. The union side connections available include MNPT, FNPT, SWT, and a variety of reductions.

| STANDARD MATERIAL SPECIFICATIONS | | STANDARD OPERATING SPECIFICATIONS | |
|----------------------------------|---|--|----------------------------|
| Body | Forged Brass ASTM B283-06 or Cast Brass ASTM B763-08A | Control Range: | 2 psi - 60+ psi |
| O-Ring | EPDM | Accuracy: | ±5% |
| Tail Piece, Packing Nut | Brass ASTM B124-09, B228-06, or B763-08A | Max Working Pressure: | 600 WOG / CWP |
| Union Nut | Brass ASTM B455 | Max Operating Temperature: | 40°F to 250°F |
| Flow Cartridge | ASTM A582 Type 303 Stainless Steel | Start-Up Head Loss: | 5 Feet of H ₂ O |
| Diaphragm | EPDM | Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice or liability. | |
| Spring | 302 Stainless Steel | | |
| PT Port | EPDM Dual Durometer Core | | |
| Ball Valve | Forged Brass ASTM B283-06 | | |
| Stem | Brass ASTM B124-09 - Blow-Out Proof | | |
| Ball | Chrome Plated Brass | | |
| Ball Seat, Packing Gland | Teflon | | |
| Handle | Chrome Plated Steel w/ Vinyl Cover | | |

| Valve Size | FLOW RATES (GPM) * CONTROL RANGE 2 - 60+ PSID ** | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|--|-----|-----|-----|------|-----|------|----|------|-----|------|----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| A ½" - 1" L | .33 | .50 | .75 | 1 | 1.25 | 1.5 | 1.75 | 2 | 2.25 | 2.5 | 2.75 | 3 | 3.5 | 4 | 4.5 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 9 | 10 | 11 | 12 |
| B 1" H - 1½" L | 5 | 5.5 | 6 | 6.5 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 |
| C 1½" H - 2" | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 |

* Custom flow rates can be calibrated at the factory for an additional charge.
 Unless confirmed as special, flow rates will default to standard flow rate.

PRODUCT SPECIFICATIONS:

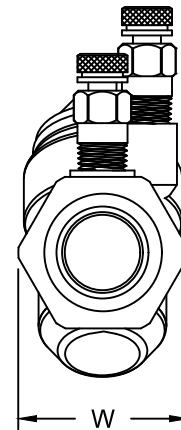
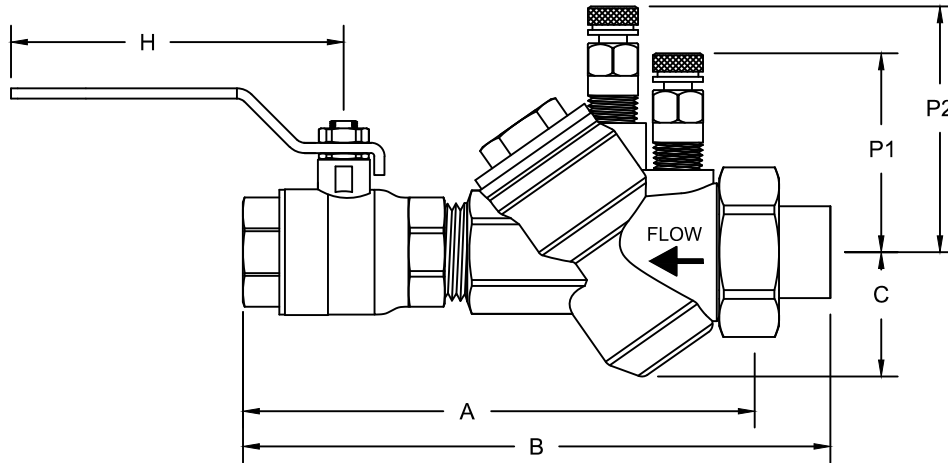
- The Automatic Flow Limiter with Ball Valve (AFLB) shall have flow measurement capability
- The AFLB shall have a static orifice to control flow
- The AFLB Cartridge shall be permanently marked with the letter that corresponds to the factory preset GPM
- All flow cartridge wear surfaces shall be stainless steel
- The AFLB shall have a 2 PSID start up rating
- The AFLB Cartridge shall have a large operational differential range
- The AFLB Cartridge shall provide continual flow at differential pressures above design limits
- The AFLB Cartridge shall be removable for cleaning or exchange if required



AFLB Series Dimensions

Automatic Pressure Independent Flow Limiter w/ Ball Valve

A: AFLB - 1/2" - 1" L



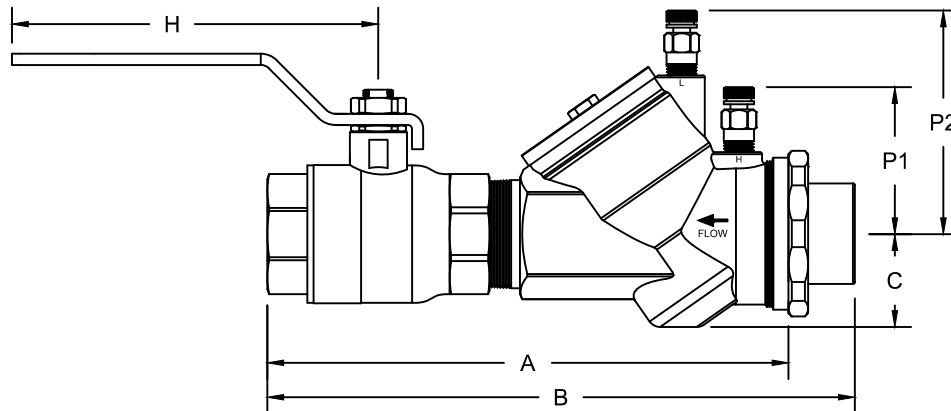
| BALL VALVE SIZE AND TYPE | A | TAIL PIECE | B | WEIGHT (lbs) | C | H | P1 | P2 | W |
|--------------------------|-----|------------|-----|--------------|-----|-----|-----|-----|-----|
| 1/2" SWT | 5.7 | - M | 7.3 | 1.8 | 1.3 | 3.7 | 2.3 | 2.8 | 1.7 |
| | | - F | 6.4 | 1.8 | | | | | |
| | | - S | 6.4 | 1.7 | | | | | |
| 1/2" FPT | 5.4 | - M | 7.0 | 1.8 | 1.3 | 3.7 | 2.3 | 2.8 | 1.7 |
| | | - F | 6.0 | 1.8 | | | | | |
| | | - S | 6.0 | 1.7 | | | | | |
| 3/4" SWT | 6.6 | - M | 8.1 | 2.4 | 1.4 | 3.8 | 2.0 | 2.6 | 1.8 |
| | | 1/2" - F | 7.3 | 2.4 | | | | | |
| | | - S | 7.3 | 2.4 | | | | | |
| | | - M | 8.3 | 2.5 | | | | | |
| | | 3/4" - F | 7.2 | 2.4 | | | | | |
| | | - S | 7.2 | 2.4 | | | | | |
| 3/4" FPT | 6.1 | - M | 7.5 | 2.4 | 1.4 | 3.8 | 2.0 | 2.6 | 1.8 |
| | | 1/2" - F | 7.2 | 2.5 | | | | | |
| | | - S | 6.8 | 2.4 | | | | | |
| | | - M | 7.8 | 2.5 | | | | | |
| | | 3/4" - F | 7.0 | 2.4 | | | | | |
| | | - S | 6.8 | 2.4 | | | | | |
| 1" SWT | 7.3 | 1/2" - M | 9.5 | 3.5 | 1.2 | 5.0 | 2.0 | 2.5 | 2.1 |
| | | 3/4" - M | 9.5 | 3.5 | | | | | |
| | | - S | 8.2 | 3.3 | | | | | |
| | | - M | 9.5 | 3.6 | | | | | |
| | | 1" - F | 8.5 | 3.4 | | | | | |
| - S | 8.5 | 3.3 | | | | | | | |
| 1" FPT | 6.7 | 1/2" - M | 8.7 | 3.5 | 1.2 | 5.0 | 2.0 | 2.5 | 2.1 |
| | | 3/4" - M | 8.7 | 3.5 | | | | | |
| | | - S | 7.5 | 3.3 | | | | | |
| | | - M | 8.7 | 3.6 | | | | | |
| | | 1" - F | 7.6 | 3.4 | | | | | |
| - S | 7.6 | 3.3 | | | | | | | |

Note: Dimensions listed above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions and material specifications. Sweat size listed is nominal and will differ from the actual, measurable size.

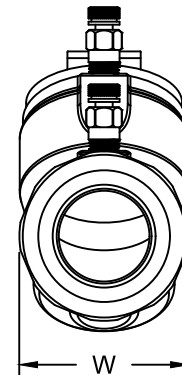


AFLB Series Dimensions

Automatic Pressure Independent Flow Limiter w/ Ball Valve B: AFLB - 1" H - 1½" L



| BALL VALVE SIZE AND TYPE | A | TAIL PIECE | B | WEIGHT (lbs) | C | H | P1 | P2 | W |
|--------------------------|-----|------------|------|--------------|-----|-----|-----|-----|-----|
| 1" SWT | 8.6 | - M | 10.6 | 5.3 | 1.4 | 5.0 | 2.3 | 2.6 | 3.9 |
| | | - F | 9.5 | 5.2 | | | | | |
| | | - S | 9.5 | 5.1 | | | | | |
| 1" FPT | 8.0 | - M | 10.0 | 5.3 | 1.4 | 5.0 | 2.3 | 2.6 | 3.9 |
| | | - F | 8.8 | 5.2 | | | | | |
| | | - S | 9.0 | 5.1 | | | | | |
| 1¼" SWT | 9.1 | - M | 11.0 | 6.2 | 1.4 | 5.0 | 2.3 | 2.6 | 3.9 |
| | | - F | 11.1 | 6.3 | | | | | |
| | | - S | 10.5 | 5.9 | | | | | |
| | | - M | 11.1 | 6.3 | | | | | |
| | | - F | 10.1 | 6.0 | | | | | |
| | | - S | 10.2 | 5.9 | | | | | |
| 1¼" FPT | 8.3 | - M | 10.3 | 6.2 | 1.4 | 5.0 | 2.3 | 2.6 | 3.9 |
| | | - F | 9.3 | 6.0 | | | | | |
| | | - S | 9.6 | 5.9 | | | | | |
| | | - M | 10.3 | 6.3 | | | | | |
| | | - F | 9.0 | 5.8 | | | | | |
| | | - S | 9.5 | 5.9 | | | | | |
| 1½" SWT | 9.4 | - M | 11.9 | 6.5 | 1.4 | 6.3 | 2.5 | 3.4 | 3.2 |
| | | - F | 11.9 | 6.6 | | | | | |
| | | - S | 10.9 | 5.9 | | | | | |
| | | - M | 11.9 | 6.4 | | | | | |
| | | - F | 10.6 | 6.1 | | | | | |
| | | - S | 10.6 | 5.9 | | | | | |
| 1½" FPT | 9.0 | - M | 11.0 | 6.4 | 1.4 | 6.3 | 2.5 | 3.4 | 3.2 |
| | | - F | 11.0 | 6.5 | | | | | |
| | | - S | 10.0 | 5.8 | | | | | |
| | | - M | 11.0 | 6.3 | | | | | |
| | | - F | 9.7 | 6.0 | | | | | |
| | | - S | 9.7 | 5.8 | | | | | |



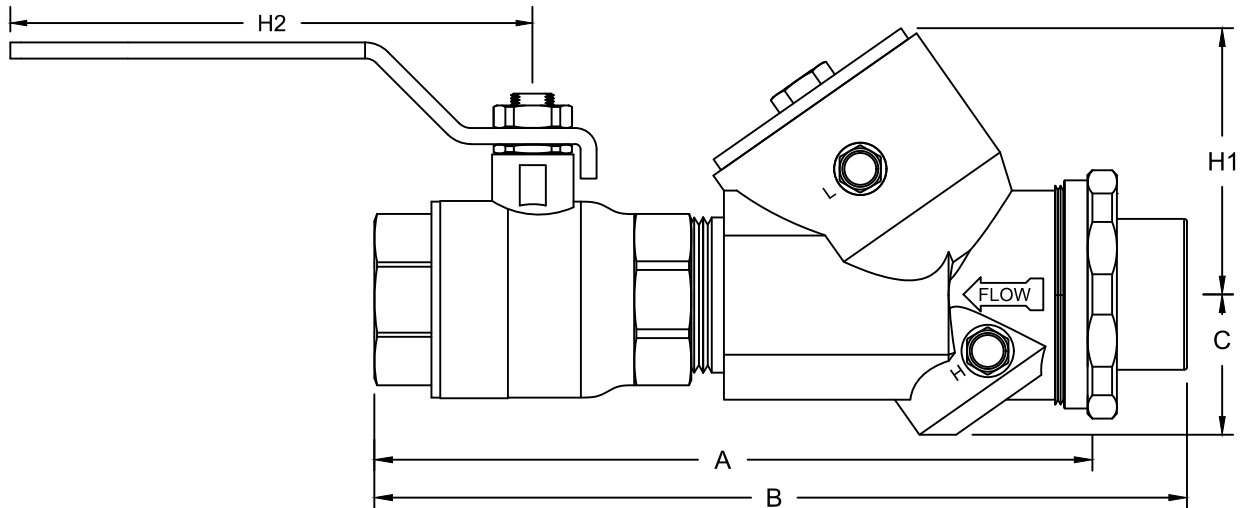
Note: Dimensions listed above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions and material specifications. Sweat size listed is nominal and will differ from the actual, measurable size.



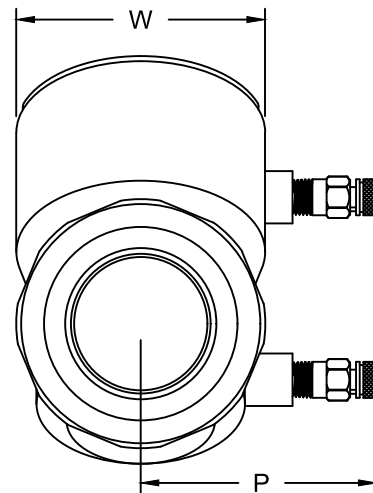
AFLB Series Dimensions

Automatic Pressure Independent Flow Limiter w/ Ball Valve

C: AFLB - 1½" H - 2"



| BALL VALVE SIZE AND TYPE | A | TAIL PIECE | B | WEIGHT (lbs) | C | H1 | H2 | P | W |
|--------------------------|------|------------|------|--------------|-----|-----|-----|-----|-----|
| 1½" SWT | 12.3 | - M | 15.3 | 14.7 | 2.2 | 4.2 | 6.3 | 3.2 | 3.7 |
| | | 1¼" - F | 15.3 | 14.6 | | | | | |
| | | - S | 14.0 | 13.8 | | | | | |
| | | - M | 15.0 | 15.1 | | | | | |
| | | 1½" - F | 15.3 | 14.8 | | | | | |
| | | - S | 13.8 | 13.8 | | | | | |
| 1½" FPT | 11.5 | - M | 14.5 | 14.7 | 2.2 | 4.2 | 6.3 | 3.2 | 3.7 |
| | | 1¼" - F | 14.5 | 14.6 | | | | | |
| | | - S | 13.0 | 13.8 | | | | | |
| | | - M | 14.5 | 15.1 | | | | | |
| | | 1½" - F | 14.5 | 14.8 | | | | | |
| | | - S | 13.1 | 13.8 | | | | | |
| 2" SWT | 11.7 | - M | 14.7 | 15.5 | 2.2 | 4.2 | 6.2 | 3.2 | 3.7 |
| | | 1½" - F | 14.7 | 15.5 | | | | | |
| | | - S | 13.3 | 14.6 | | | | | |
| | | - M | 14.7 | 15.5 | | | | | |
| | | 2" - F | 12.8 | 14.9 | | | | | |
| | | - S | 13.2 | 14.5 | | | | | |
| 2" FPT | 10.6 | - M | 13.6 | 15.4 | 2.2 | 4.2 | 6.2 | 3.2 | 3.7 |
| | | 1½" - F | 13.6 | 15.4 | | | | | |
| | | - S | 12.2 | 14.5 | | | | | |
| | | - M | 13.6 | 15.4 | | | | | |
| | | 2" - F | 11.8 | 14.8 | | | | | |
| | | - S | 12.0 | 14.4 | | | | | |



Note: Dimensions listed above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions and material specifications. Sweat size listed is nominal and will differ from the actual, measurable size.

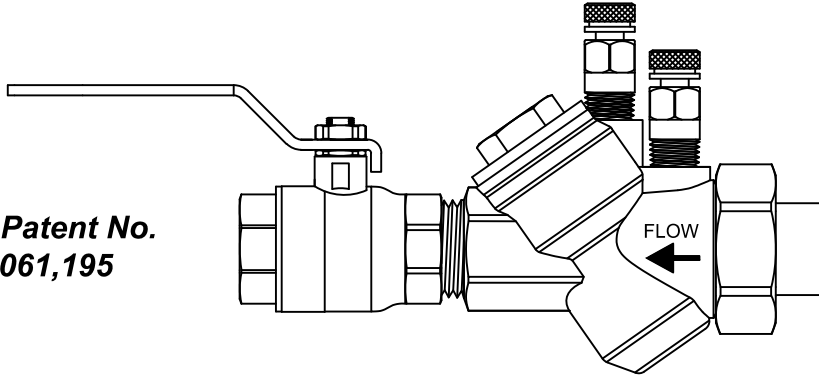
PRO *Hydronic* Specialties

AFLB Series Submittal

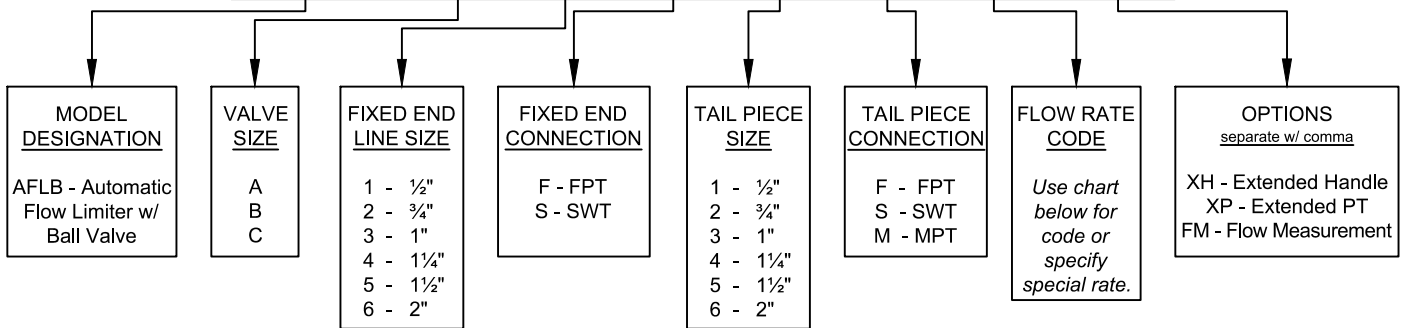
Automatic Pressure Independent Flow Limiter w/ Ball Valve

- A: AFLB - 1/2" - 1" L
- B: AFLB - 1" H - 1 1/2" L
- C: AFLB - 1 1/2" H - 2"

U.S. Patent No.
8,061,195



AFLB - X - X - X - X - X - X - XX,



| Valve Size | FLOW RATE CODES (GPM)* CONTROL RANGE 2 - 60+ PSID ** | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|--|-----|-----|-----|------|-----|------|----|------|-----|------|----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| A 1/2" - 1" L | .33 | .50 | .75 | 1 | 1.25 | 1.5 | 1.75 | 2 | 2.25 | 2.5 | 2.75 | 3 | 3.5 | 4 | 4.5 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 9 | 10 | 11 | 12 |
| B 1" H - 1 1/2" L | 5 | 5.5 | 6 | 6.5 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 |
| C 1 1/2" H - 2" | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 |

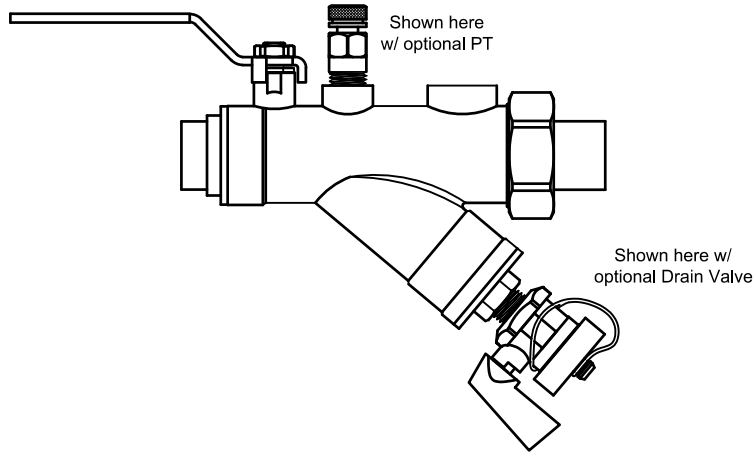
* Custom flow rates can be calibrated at the factory for an additional charge.
 Unless confirmed as special, flow rates will default to standard flow rate.

| | | | |
|--------------------------|-------------------------|-----------------|----------|
| JOB NAME: | | REPRESENTATIVE: | |
| ENGINEER: | | REF/PO#: | |
| CONTRACTOR: | | SUBMITTED BY: | |
| | | DATE: | |
| | | DATE: | |
| PART # (See table above) | TAGGING/JOB INFORMATION | GPM | QUANTITY |
| | | | |
| | | | |
| | | | |



IVY Series Specifications

Integral Ball Valve/Wye Strainer/Union



PRODUCT DESCRIPTION: The IVY is an integral ball valve, wye-strainer and union. The IVY uses a full-port ball valve for positive shut-off and offers two (2) predrilled 1/4" taps for accessories to be installed. A 1/4" standard port and by-pass tap are provided at the forward 12:00 position. The bypass port comes tapped and plugged for 2-way control valve configurations. The bypass port remains open on 3-way control valve configurations to install a bypass valve. (See *IVY Series Dimensions* page for *bypass valve sizes*.) An additional side port is available for factory drilling and tapping a 1/4" port. The strainer has a 20-mesh stainless steel screen to aid in debris removal. The strainer cap has a 1/4" tap for a hose-end drain valve. The ball valve has a PTFE packing gland, brass packing nut, and blow-out proof double o-ring stem seal. The fixed end connections may be FNPT or SWT. The union side connections include MNPT, FNPT, SWT, and a variety of reductions.

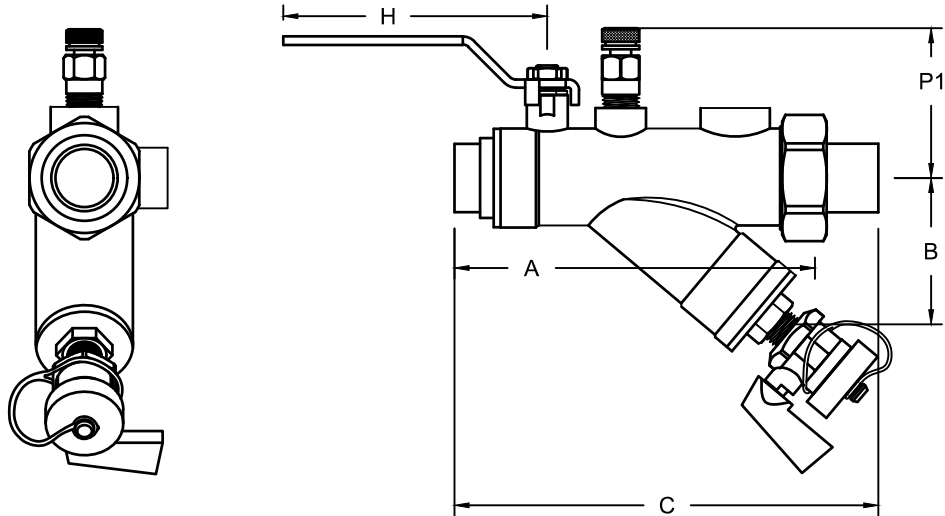
| STANDARD MATERIAL SPECIFICATIONS | | PORT LOCATIONS |
|---|--|----------------|
| Body | Forged Brass ASTM B283-06, or cast Brass ASTM B763-08A | |
| O-Ring | EPDM | |
| Tail Piece | Brass ASTM B124-09, B228-06, or B763-08a | |
| Union Nut | Brass ASTM B455 | |
| PT Seal | EPDM Dual Durometer Core | |
| Handle | Chrome Plated Steel | |
| Stem | Brass ASTM B124-09 - Blow-Out Proof | |
| Ball | Chrome Plated Brass - Full Port | |
| Ball Seat | Teflon | |
| Packing Gland | Teflon | |
| Packing Nut | Brass ASTM B124-09, B228-06, or B763-08a | |
| STANDARD OPERATING SPECIFICATIONS | | |
| Maximum Working Pressure: | 600 WOG / CWP | |
| Maximum Operating Temperature: | -22° F to 325° F | |
| <p>Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice or liability.</p> | | |

PRODUCT SPECIFICATIONS:

- Device shall have a full port isolation valve
- Device shall have a 20 mesh accessible strainer sleeve (standard) or a 40 mesh accessible strainer sleeve (optional)
- Device shall have a blow down for debris removal
- Device shall have a functional by-pass
- The strainer screen shall have a minimum 8:1 ratio of total area against the internal pipe diameter

PRO Hydronic Specialties

IVY Series Dimensions Integral Ball Valve/Wye Strainer/Union



| Model | Size | Bypass Size | A | B | H | P1 | * R | ** Cv |
|----------|------|-------------|-----|-----|-----|-----|--------|-------|
| IVY1-SWT | ½" | ½" | 4.4 | 2.3 | 4.1 | 2.0 | 11 : 1 | 8 |
| IVY2-SWT | ¾" | ½" | 5.4 | 2.2 | 3.8 | 2.1 | 8 : 1 | 9 |
| IVY3-SWT | 1" | ½" | 6.1 | 2.7 | 3.9 | 2.3 | 11 : 1 | 20 |
| IVY4-SWT | 1 ¼" | ¾" | 7.0 | 3.2 | 3.8 | 2.7 | 9 : 1 | 23 |
| IVY5-SWT | 1 ½" | ¾" | 8.6 | 3.2 | 6.3 | 3.0 | 13 : 1 | 44 |
| IVY6-SWT | 2" | 1" | 9.2 | 3.5 | 6.5 | 3.1 | 9 : 1 | 46 |
| IVY1-FPT | ½" | ½" | 4.2 | 2.3 | 4.1 | 2.0 | 11 : 1 | 7 |
| IVY2-FPT | ¾" | ½" | 4.9 | 2.2 | 3.8 | 2.1 | 8 : 1 | 8 |
| IVY3-FPT | 1" | ½" | 5.4 | 2.7 | 3.9 | 2.3 | 11 : 1 | 19 |
| IVY4-FPT | 1 ¼" | ¾" | 6.3 | 3.2 | 3.8 | 2.7 | 9 : 1 | 21 |
| IVY5-FPT | 1 ½" | ¾" | 7.5 | 3.2 | 6.3 | 3.0 | 13 : 1 | 45 |
| IVY6-FPT | 2" | 1" | 8.1 | 3.5 | 6.5 | 3.1 | 9 : 1 | 47 |

| Size | Tail Piece | C | Weight | Size | Tail Piece | C | Weight |
|----------|------------|------|--------|----------|------------|------|--------|
| ½" SWT | - M | 6.0 | 1.8 | ½" FPT | - M | 6.5 | 1.8 |
| | - F | 5.1 | 1.8 | | - F | 4.8 | 1.8 |
| | - S | 5.1 | 1.8 | | - S | 4.8 | 1.8 |
| ¾" SWT | - M | 7.0 | 2.2 | ¾" FPT | - M | 6.5 | 2.5 |
| | - F | 6.3 | 2.3 | | - F | 6.0 | 2.5 |
| | - S | 6.1 | 2.2 | | - S | 5.7 | 2.1 |
| | - M | 7.0 | 2.3 | ¾" FPT | - M | 6.5 | 2.3 |
| | - F | 6.1 | 2.2 | | - F | 5.7 | 2.2 |
| | - S | 6.2 | 2.2 | | - S | 5.7 | 2.2 |
| 1" SWT | - M | 8.1 | 3.2 | 1" FPT | - M | 7.2 | 3.2 |
| | - F | 8.1 | 3.7 | | - F | 7.2 | 3.2 |
| | - S | 7.0 | 3.4 | | - S | 6.1 | 3.0 |
| | - M | 8.1 | 3.5 | 1" FPT | - M | 7.2 | 3.3 |
| | - F | 7.1 | 3.1 | | - F | 6.2 | 3.1 |
| | - S | 7.1 | 3.0 | | - S | 6.2 | 3.1 |
| 1 ¼" SWT | - M | 9.0 | 5.0 | 1 ¼" FPT | - M | 8.2 | 5.0 |
| | - F | 9.0 | 5.0 | | - F | 8.2 | 5.1 |
| | - S | 8.2 | 4.6 | | - S | 7.7 | 4.7 |
| | - M | 9.0 | 5.1 | 1 ¼" FPT | - M | 8.2 | 5.1 |
| | - F | 8.0 | 4.8 | | - F | 7.3 | 4.8 |
| | - S | 8.1 | 4.7 | | - S | 7.5 | 4.7 |
| 1 ½" SWT | - M | 11.0 | 7.6 | 1 ½" FPT | - M | 10.1 | 7.4 |
| | - F | 11.0 | 7.7 | | - F | 10.0 | 7.6 |
| | - S | 10.0 | 7.1 | | - S | 9.0 | 7.0 |
| | - M | 11.0 | 7.6 | 1 ½" FPT | - M | 10.1 | 7.4 |
| | - F | 9.8 | 7.3 | | - F | 9.0 | 7.2 |
| | - S | 9.7 | 7.1 | | - S | 8.8 | 7.0 |
| 2" SWT | - M | 12.2 | 10.0 | 2" FPT | - M | 11.1 | 9.7 |
| | - F | 12.2 | 8.6 | | - F | 11.1 | 9.7 |
| | - S | 11.0 | 9.0 | | - S | 9.7 | 8.8 |
| | - M | 12.2 | 10.0 | 2" FPT | - M | 11.1 | 9.8 |
| | - F | 10.5 | 9.4 | | - F | 9.2 | 9.1 |
| | - S | 10.7 | 9.0 | | - S | 9.5 | 8.8 |

Note: Dimensions above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions, weights, and material specifications.

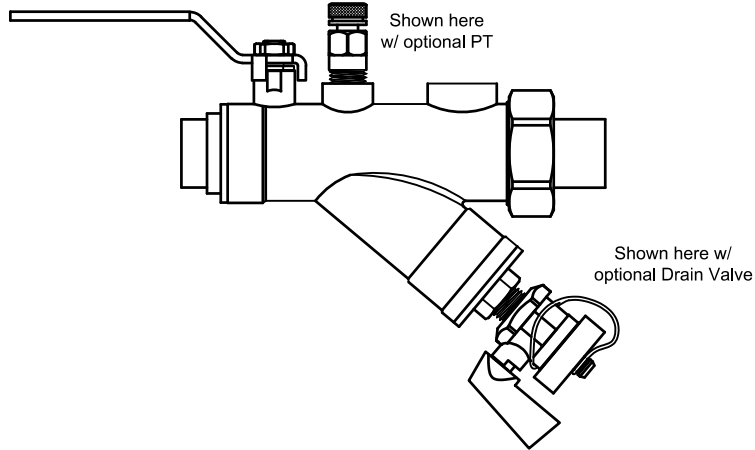
* R = Ratio of screen surface area to cross-sectional pipe diameter

** Cv = Estimated with Union Connection same as inlet, no reductions.

Note: Sweat size listed is nominal and will differ from the actual, measurable size.



IVY Series Submittal
Integral Ball Valve/Wye Strainer/Union



IVY - X - X - X - X - XX - XX - X

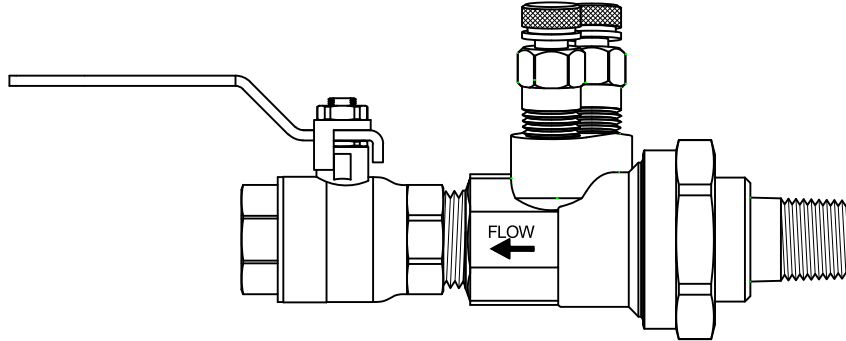
| MODEL DESIGNATION | LINE SIZE | END CONNECTION | TAIL PIECE SIZE | TAIL PIECE CONNECTION | FIRST ACCESSORY OPTION | SECOND ACCESSORY OPTION | BYPASS OPTION |
|-------------------------------|--|--------------------|--|-------------------------------|--|--|--|
| IVY - Integral Strainer Valve | 1 - 1/2" 2 - 3/4" 3 - 1" 4 - 1 1/4" 5 - 1 1/2" 6 - 2" | F - FPT S - SWT | 1 - 1/2" 2 - 3/4" 3 - 1" 4 - 1 1/4" 5 - 1 1/2" 6 - 2" | F - FPT S - SWT M - MPT | XH - Extended Handle PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - 1/4" Hose-end Drain Valve | XH - Extended Handle PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - 1/4" Hose-end Drain Valve | B = Bypass <i>Bypass tap size provided on IVY Dimensions Form : SUBIVY2</i> |

| JOB NAME: | | CUSTOMER: | |
|--------------------------|-------------------------|---------------|----------|
| ENGINEER: | | REF/PO#: | DATE: |
| CONTRACTOR: | | SUBMITTED BY: | DATE: |
| PART # (See table above) | TAGGING/JOB INFORMATION | | QUANTITY |
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CBV Series Specifications

Combination Ball Valve/Venturi



PRODUCT DESCRIPTION: The CBV flow balancing brass venturi provides highly accurate flow measurement capabilities. The efficient low loss venturi design provides effective flow balancing with minimal system pressure loss. The CBV includes a brass ball valve with memory stop, and a venturi with an integral union. The CBV comes standard with two pressure/temperature ports for instrument readings. The union side incorporates an o-ring for maximum sealing protection. The union connection options include FNPT, MNPT, SWT, and a variety of reductions.

NOTE: If the same size male, female, sweat, or a reducing male tail piece is used, no extra pipe diameter is required.

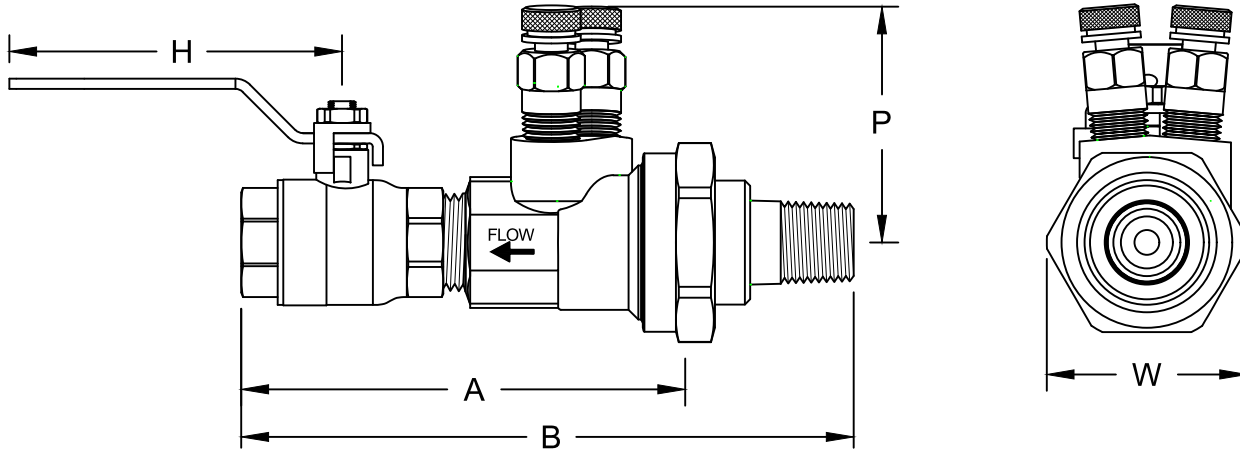
| RECOMMENDED FLOW RANGES (GPM) | | | | | STANDARD MATERIAL SPECIFICATIONS | |
|--|------|---------|---|--------|----------------------------------|--|
| Model | Size | Minimum | @ 100" | @ 200" | | |
| CBV050L | ½" | 0.3 | 1.2 | 1.8 | Venturi | Cast Brass ASTM B763-08A |
| CBV050H | ½" | 0.8 | 2.9 | 4.2 | Ball Valve | Forged Brass ASTM B283-06 |
| CBV075UL | ¾" | 0.3 | 1.2 | 1.8 | O-ring | EPDM |
| CBV075L | ¾" | 0.8 | 2.9 | 4.2 | Tail Piece | Brass ASTM B124-09, B228-06, or B763-08A |
| CBV075H | ¾" | 1.8 | 6.1 | 8.9 | Union Nut | Brass ASTM B455 |
| CBV100 | 1" | 2.8 | 9.8 | 14.3 | PT Seal | EPDM Dual Durometer Core |
| CBV125 | 1¼" | 4.8 | 16.4 | 24.0 | Handle | Chrome Plated Steel |
| CBV150 | 1½" | 7.5 | 24.4 | 35.5 | Memory Stop | 302 Stainless Steel |
| CBV200 | 2" | 12.0 | 40.8 | 69.3 | Stem | Brass ASTM B124-09 - Blow-Out Proof |
| | | | | | Ball | Chrome Plated Brass |
| | | | | | Ball Seat | Teflon |
| | | | | | Packing Nut | Brass ASTM B124-09, B228-06, or B763-08A |
| | | | | | Packing Gland | Teflon |
| STANDARD OPERATING SPECIFICATIONS | | | | | | |
| Maximum Working Pressure: 600 WOG / CWP | | | Maximum Operating Temperature: -22° F to 325° F | | | |
| Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice or liability. | | | | | | |

PRODUCT SPECIFICATIONS:

- Devices shall have a 15° regain chamber for optimal pressure regain and minimal permanent pressure drop
- Venturi tube shall be independent of the throttling valve
- Venturi tube shall include proper pipe diameters for optimal accuracy
- Valve shall be designed with memory stop to limit flow once balanced
- The Model CBV shall have an accuracy rating of:
 - ±1% between 10" W.C. and 70" W.C.
 - ±3% between 5" W.C. and 150" W.C.
 - ±5% less than 5" W.C. and over 150" W.C.



CBV Series Dimensions Combination Ball Valve/Venturi



| Model | Size | A | | H | P | W | Cv ** |
|-----------|------|-----|-----|-----|-----|-----|-------|
| | | FPT | SWT | | | | |
| CBV050L | ½" | 4.5 | 4.8 | 3.7 | 2.1 | 1.6 | 1.1 |
| CBV050H | ½" | 4.5 | 4.8 | 3.7 | 2.1 | 1.6 | 3.8 |
| CBV075UL* | ¾" | 4.7 | 5.2 | 3.8 | 2.1 | 1.6 | 1.1 |
| CBV075L | ¾" | 4.7 | 5.2 | 3.8 | 2.1 | 1.8 | 2.3 |
| CBV075H | ¾" | 4.7 | 5.2 | 3.8 | 2.1 | 1.8 | 8.0 |
| CBV100 | 1" | 5.1 | 5.7 | 5.0 | 2.2 | 2.1 | 13.4 |
| CBV125 | 1¼" | 5.8 | 6.5 | 5.0 | 2.4 | 2.8 | 25 |
| CBV150 | 1½" | 7.0 | 8.0 | 6.3 | 2.7 | 3.1 | 31 |
| CBV200 | 2" | 7.6 | 8.7 | 6.2 | 3.0 | 3.8 | 87 |

| Size | Tail Piece | B | Weight | Size | Tail Piece | B | Weight |
|---------|------------|------|--------|---------|------------|------|--------|
| ½" SWT | - M | 6.2 | 1.4 | ½" FPT | - M | 6.0 | 1.4 |
| | ½" - F | 5.5 | 1.3 | | ½" - F | 5.1 | 1.3 |
| | - S | 5.5 | 1.3 | | - S | 5.1 | 1.3 |
| ¾" SWT | - M | 6.7 | 1.8 | ¾" FPT | - M | 6.5 | 1.8 |
| | ½" - F | 6.3 | 1.8 | | ½" - F | 5.8 | 1.8 |
| | - S | 6.0 | 1.7 | | - S | 5.5 | 1.7 |
| | - M | 6.8 | 1.8 | | - M | 6.5 | 1.8 |
| | ¾" - F | 6.0 | 1.7 | | ¾" - F | 5.5 | 1.8 |
| | - S | 6.0 | 1.7 | | - S | 5.5 | 1.7 |
| 1" SWT | ½" - M | 7.7 | 2.7 | 1" FPT | ½" - M | 7.1 | 2.7 |
| | ¾" - M | 7.7 | 2.7 | | ¾" - M | 7.1 | 2.7 |
| | - M | 7.7 | 2.7 | | - M | 7.0 | 2.7 |
| | 1" - F | 6.7 | 2.5 | | 1" - F | 6.0 | 2.5 |
| - S | 6.7 | 2.5 | - S | 6.0 | 2.5 | | |
| 1¼" SWT | ½" - M | 8.1 | 3.9 | 1¼" FPT | ½" - M | 7.5 | 3.9 |
| | ¾" - M | 8.3 | 4.0 | | ¾" - M | 7.7 | 4.0 |
| | 1" - M | 8.3 | 4.1 | | 1" - M | 7.7 | 4.1 |
| | - M | 8.5 | 4.2 | | - M | 7.7 | 4.1 |
| | 1¼" - F | 7.5 | 3.9 | | 1¼" - F | 6.7 | 3.8 |
| | - S | 7.5 | 3.7 | | - S | 7.0 | 3.7 |
| 1½" SWT | ¾" - M | 9.7 | 5.6 | 1½" FPT | ¾" - M | 9.3 | 5.7 |
| | 1" - M | 10.7 | 6.1 | | 1" - M | 9.5 | 6.0 |
| | 1¼" - M | 10.7 | 6.2 | | 1¼" - M | 9.5 | 6.1 |
| | - M | 10.5 | 6.0 | | - M | 9.5 | 6.0 |
| | 1½" - F | 9.1 | 5.8 | | 1½" - F | 8.2 | 5.7 |
| | - S | 9.1 | 5.6 | | - S | 8.2 | 5.6 |
| 2" SWT | 1" - M | 11.7 | 9.3 | 2" FPT | 1" - M | 10.5 | 9.1 |
| | 1¼" - M | 11.7 | 8.9 | | 1¼" - M | 10.5 | 8.6 |
| | 1½" - M | 11.7 | 8.9 | | 1½" - M | 10.5 | 8.7 |
| | - M | 11.7 | 9.0 | | - M | 10.5 | 8.8 |
| | 2" - F | 9.8 | 8.3 | | 2" - F | 8.7 | 8.1 |
| | - S | 10.1 | 8.0 | | - S | 9.0 | 7.8 |

Note: Dimensions listed do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions, weights, and material specifications.

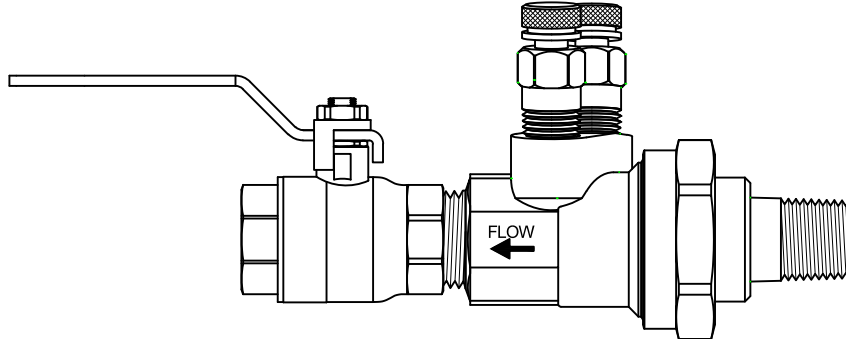
* CBV075UL Tailpiece size is ½"

** Cv = Estimated with Union connection same as inlet, no reductions.

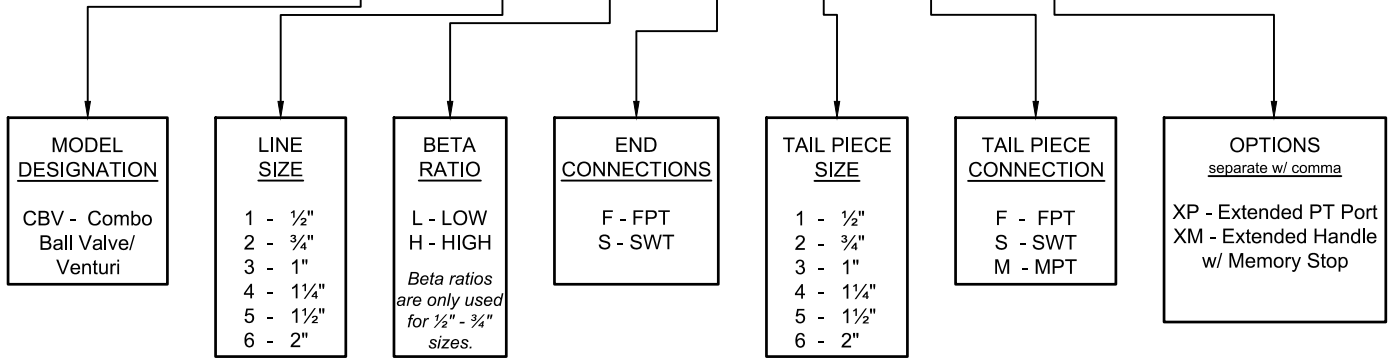
Note: Sweat size listed is nominal and will differ from the actual, measurable size. Not all available tailpiece connections are listed, please consult with factory for additional information.



CBV Series Submittal
Combination Ball Valve/Venturi



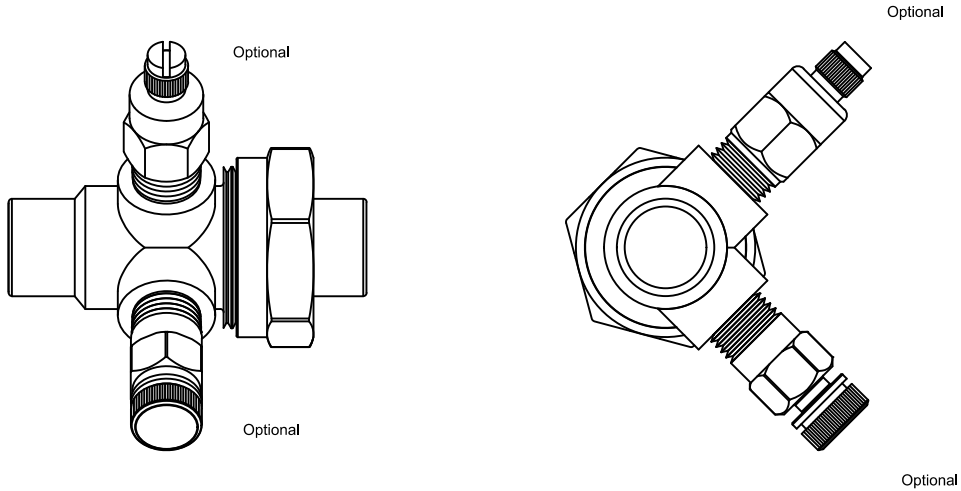
CBV - X - X - X - X - X - XX,



| JOB NAME: | | REPRESENTATIVE: | |
|--------------------------|-------------------------|-----------------|----------|
| ENGINEER: | | REF/PO#: | DATE: |
| CONTRACTOR: | | SUBMITTED BY: | DATE: |
| PART # (See table above) | TAGGING/JOB INFORMATION | GPM | QUANTITY |
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AU Series Specifications Accessory Union



Product Description: The AU brass accessory union provides for component isolation. Port section contains two 1/4" ports that come predrilled from the factory and are positioned 90° apart. The union side incorporates an o-ring for maximum sealing protection. Accessory union comes standard with 1/4" plugs installed in the ports. Union side and port side connections available in NPTM, NPTF, and SWT. Rated at 600 WOG @ -22°F to 325°F.

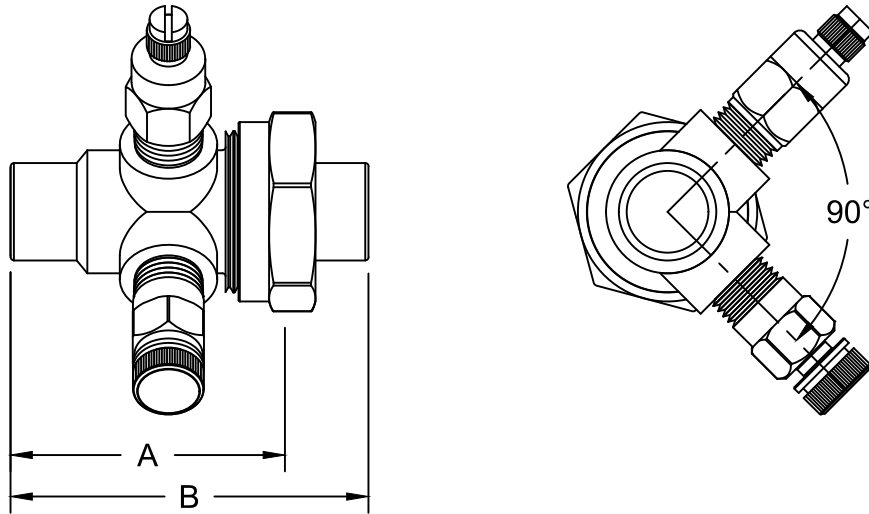
| STANDARD MATERIAL SPECIFICATIONS | |
|---|--|
| Accessory Union | Forged Brass ASTM B283-06 |
| O-Ring | EPDM |
| Tail Piece | Brass ASTM B124-09, B228-06, or B763-08A |
| <p>Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice or liability.</p> | |

PRODUCT SPECIFICATIONS:

- 1/4" ports shall be located 90° distal on a rotational axis
- Integrated ports shall provide functionality for numerous options



AU Series Dimensions Accessory Union

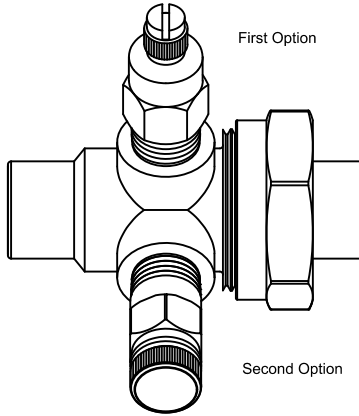


| MODEL | SIZE | A | LENGTH "B" / WEIGHT OF PRO-AU AND TAIL PIECE CONNECTION | | | | | | | | | | | |
|-------|-------------------|-----|---|-----|-------------------|-----|-------------------|-----|---------------------|-----|---------------------|-----|---------------------|-----|
| | | | $\frac{1}{2}$ " M | lbs | $\frac{1}{2}$ " S | lbs | $\frac{1}{2}$ " F | lbs | | | | | | |
| AU1M | $\frac{1}{2}$ " | 2.7 | 4.2 | 0.6 | 3.3 | 0.6 | 3.3 | 0.6 | | | | | | |
| AU1S | | 2.1 | 3.7 | 0.5 | 2.8 | 0.4 | 2.8 | 0.5 | | | | | | |
| AU1F | | 2.0 | 3.6 | 0.6 | 2.7 | 0.5 | 2.7 | 0.5 | | | | | | |
| AU2M | $\frac{3}{4}$ " | 2.5 | 4.0 | 0.7 | 3.2 | 0.6 | 3.6 | 0.8 | $\frac{3}{4}$ " M | lbs | $\frac{3}{4}$ " S | lbs | $\frac{3}{4}$ " F | lbs |
| AU2S | | 2.1 | 3.7 | 0.6 | 2.9 | 0.5 | 3.3 | 0.6 | 3.8 | 0.6 | 2.9 | 0.5 | 2.9 | 0.6 |
| AU2F | | 2.1 | 3.6 | 0.7 | 2.8 | 0.6 | 3.2 | 0.8 | 3.8 | 0.7 | 2.8 | 0.6 | 2.9 | 0.7 |
| AU3M | 1" | 2.6 | 4.6 | 1.1 | 4.6 | 1.1 | 3.4 | 0.9 | 1" M | lbs | 1" S | lbs | 1" F | lbs |
| AU3S | | 2.4 | 4.5 | 1.0 | 4.5 | 1.0 | 3.3 | 0.7 | 4.5 | 1.0 | 3.5 | 0.8 | 3.4 | 0.8 |
| AU3F | | 2.1 | 4.1 | 1.0 | 4.1 | 1.1 | 3.0 | 0.8 | 4.1 | 1.1 | 3.3 | 0.9 | 3.1 | 0.9 |
| AU4M | 1 $\frac{1}{4}$ " | 3.0 | 4.7 | 1.7 | 5.0 | 1.8 | 5.0 | 1.9 | 1 $\frac{1}{4}$ " M | lbs | 1 $\frac{1}{4}$ " S | lbs | 1 $\frac{1}{4}$ " F | lbs |
| AU4S | | 3.0 | 4.7 | 1.5 | 4.9 | 1.7 | 4.9 | 1.7 | 5.0 | 1.8 | 4.1 | 1.5 | 4.0 | 1.6 |
| AU4F | | 2.3 | 4.1 | 1.6 | 4.3 | 1.8 | 4.3 | 1.8 | 4.4 | 1.9 | 3.4 | 1.5 | 3.3 | 1.6 |
| AU5M | 1 $\frac{1}{2}$ " | 3.0 | 4.9 | 2.3 | 5.5 | 2.6 | 5.5 | 2.7 | 1 $\frac{1}{2}$ " M | lbs | 1 $\frac{1}{2}$ " S | lbs | 1 $\frac{1}{2}$ " F | lbs |
| AU5S | | 3.0 | 4.9 | 2.2 | 5.5 | 2.6 | 5.5 | 2.6 | 5.5 | 2.5 | 4.2 | 2.1 | 4.3 | 2.3 |
| AU5F | | 2.7 | 4.6 | 2.3 | 5.1 | 2.7 | 5.1 | 2.7 | 5.1 | 2.6 | 3.9 | 2.2 | 3.9 | 2.3 |
| AU6M | 2" | 3.4 | 6.2 | 4.3 | 6.2 | 4.0 | 6.2 | 4.0 | 2" M | lbs | 2" S | lbs | 2" F | lbs |
| AU6S | | 2.8 | 5.8 | 4.0 | 5.8 | 3.6 | 5.8 | 3.6 | 5.8 | 3.7 | 4.2 | 2.7 | 4.0 | 3.0 |
| AU6F | | 2.8 | 5.8 | 4.5 | 5.7 | 4.2 | 5.7 | 4.1 | 5.8 | 4.2 | 4.2 | 3.2 | 3.9 | 3.5 |

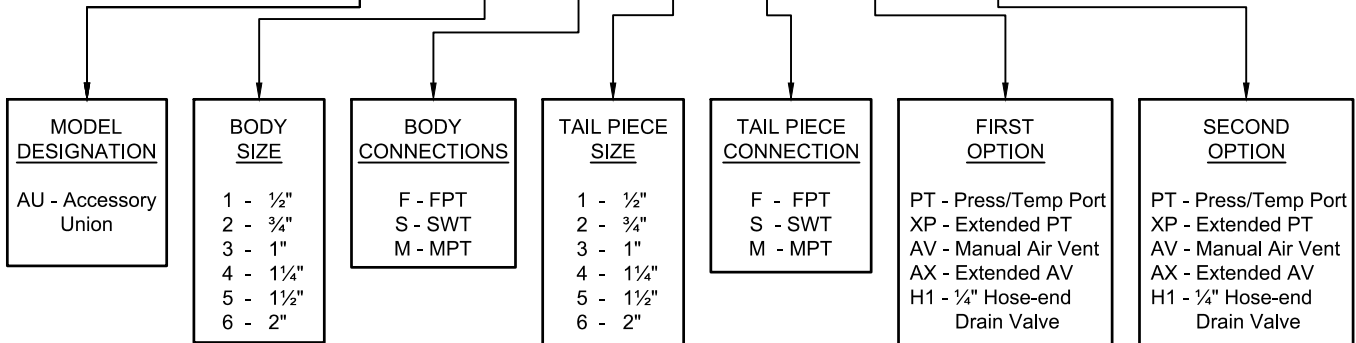
Note: Dimensions listed above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions, weights, and material specifications. Sweat size listed is nominal and will differ from the actual, measurable size.



AU Series Submittal
Accessory Union



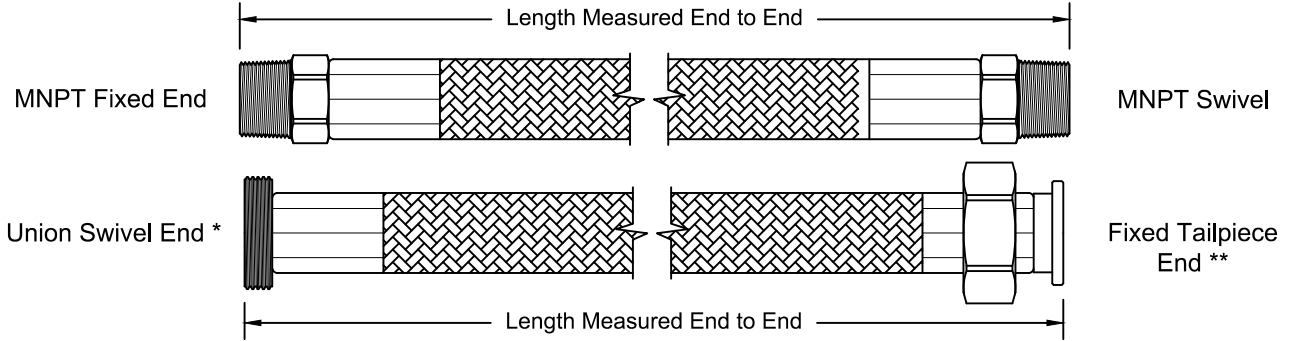
AU - X - X - X - X - XX - XX



| JOB NAME: | | REPRESENTATIVE: |
|--------------------------|-------------------------|--|
| ENGINEER: | | REF/PO#: DATE: |
| CONTRACTOR: | | SUBMITTED BY: DATE: |
| PART # (See table above) | TAGGING/JOB INFORMATION | QUANTITY |
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HSS Series Specifications Stainless Steel Braided Hose



PRODUCT DESCRIPTION: The Model HSS is a stainless steel braided hose that is abrasion resistant. The HSS has a CPE inner tube with brass end connections and stainless steel ferrules for the ½" - 1" hose sizes, and an EPDM inner tube with stainless steel ferrules and plated steel end connections for the 1¼" - 2" hose sizes. The flexible hose eases installation and is designed to withstand high pressures and varying temperatures. The standard end connections are MNPT Fixed x MNPT Swivel for ½" to 2", and FNPT Swivel for ½" to 2". Other available end connection options are FNPT Swivel, Union Swivel *, and Fixed Tailpiece** and accessory union connections; available for the ½" to 2" hose sizes. The Model HSS is BUY AMERICAN COMPLIANT.

* The Swivel Union comes standard with an EPDM O-ring, tailpiece, and union nut which must be specified at the time of order. The swivel union easily converts line connection types and offers line size reductions. The tailpieces are available in FNPT, MNPT, and Sweat ends.

** The Fixed Tailpiece hose end connection is designed to connect directly to union ended coil kit components (AFLB, AFLD, AU, CBV, IBU, or IVY). The tailpiece end eliminates multiple connections.

| PRODUCT SPECIFICATIONS | |
|---|--|
| Tube | CPE (Chlorinated Polyethylene) for ½" - 1" sizes - SAE J1019 EPDM (Ethylene Propylene Diene Monomer) for 1¼" - 2" sizes - SAE 20R1-D1 |
| Reinforcement | 304L Stainless Steel braid cover meets UL-94 requirements |
| Ferrules | Type 304L stainless Steel |
| End Fittings | ½" - 1" I.D. - Brass 1¼" - 2" I.D. - Steel Plated |
| End Connections | Fixed MNPT, FNPT, Swivel MNPT, Swivel FNPT (½"-2"), Swivel Union (½" - 2"), Fixed Tailpiece (½"-2") |
| Temperature Ratings | -40°F to 257°F (-40°C to 125°C) NOTE HOSE IS NOT INTENDED FOR STEAM APPLICATIONS. |
| | Meets UL-94 Requirements Fire Retardant Material (CPE) |
| Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice. | |

| Size | Length | Working PSI | Bend Radius | ** Cv |
|------|--------------------|-------------|-------------|-------|
| ½" | 12, 18, 24, 30, 36 | 500 | 5" | 7 |
| ¾" | 12, 18, 24, 30, 36 | 500 | 7" | 20 |
| 1" | 12, 18, 24, 30, 36 | 500 | 10" | 43 |
| 1¼" | 12, 18, 24, 30, 36 | 200 | 12" | 76 |
| 1½" | 12, 18, 24, 30, 36 | 200 | 15" | 130 |
| 2" | 12, 18, 24, 30, 36 | 200 | 20" | 280 |

Length is measured End to End on all hose connection types.

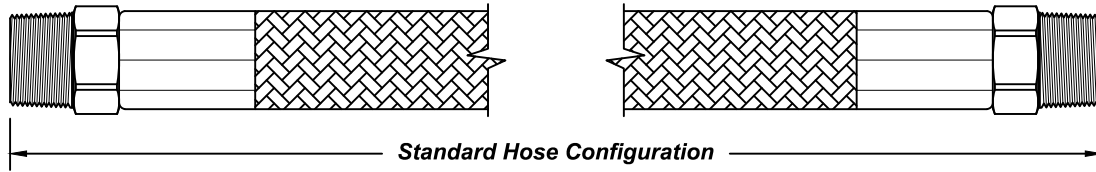
** Cv listed in chart above is for a 24" length hose. The Cv is estimated and can vary according to installation.

PRO *Hydronic Specialties*

HSS Series Options Stainless Steel Braided Hose

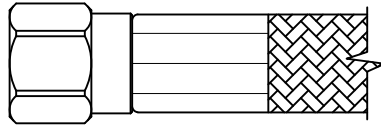
Fixed MNPT

Swivel MNPT

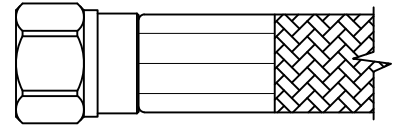


Additional End Connections

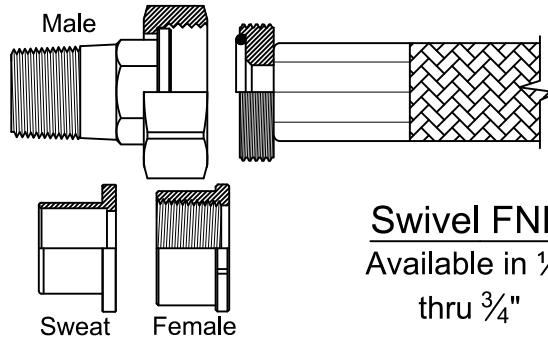
Swivel FNPT
Available in 1/2" thru 2"



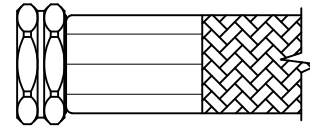
Swivel FJIC
Available in 1/2" thru 1"



Swivel Union
Available in 1/2" thru 1"
The Swivel Union must have the tailpiece connection size and type specified at time of order. Tailpiece options include FPT, SWT, MPT, and a variety of reductions.

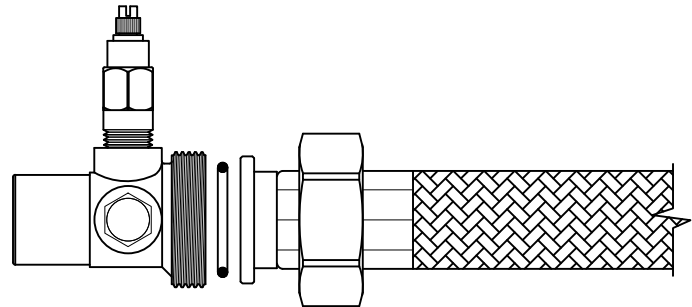


Swivel FNH
Available in 1/2" thru 3/4"



Fixed Tailpiece
Available in 1/2" thru 2"

The Fixed Tailpiece end connects directly to PRO Hydronic Specialties' union ended products.



Swivel Accessory Union
Available in 1/2" thru 2"

The Swivel Accessory Union must have the tailpiece connection size and type specified at time of order.

Tailpiece options include FPT, SWT, MPT, and a variety of reductions.

