RODGERS
Our Passion is Building®

Submittal Record

Rodgers Builders, Inc.
PO Box 18446 (28218)
5701 North Sharon Amity Road
Charlotte, NC 28215

rodgersbuilders.com
704 537 6044 TELEPHONE
704 535 0055 FAX

Architect: YCH Architects

Project: Coltrane-Webb - Beverly Hills Elem School **Rodgers Project #:** 2843

Form of Submittal

- [x] Product Data
- [x] Shop Drawings
- [ ] Mix Designs
- [ ] MSDS Sheets
- [ ] Physical Samples
- [ ] Manufacturer's Cer
- [ ] Test Reports
- [ ] Installation Instruct
- [ ] Letter of Affidavit /
- [ ] Welding Certifica
- [ ] Sample Warranty
- [ ] Other (Specify) -

- [ ] NO EXCEPTIONS TAKEN
- [x] EXCEPTIONS INDICATED
- [ ] REVISE AND RESUBMIT
- [ ] REJECTED; RESUBMIT

REVIEWED ONLY FOR CONFORMANCE WITH DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE VERIFIED AND CORRELATED AT THE SITE; FOR QUANTITY VERIFICATION; FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESSES OR THE MEANS, METHODS, TECHNIQUES OR SEQUENCES AND PROCEDURES OF CONSTRUCTION; AND FOR COORDINATION OF THE WORK OF ALL TRADES.

YATES-CHREITZBERG-HUGHES ARCHITECTS
7035 NORTHWINDS DR. NW
CONCORD, NORTH CAROLINA 28027

BY: _____ DATE: 05-09-25

Submittal No. 23 05 23 - 001.0

Item: HVAC Coil Hookup Kits Product Data & Shop Drawings

Drawing Number:

Spec. Section & Package No.: 230523

Manufacturer: Pro Hydronics

Brand:

Submitted By: Superior Mechanical Services

Review Due Date: 05/05/2025

2-WAY PAGE 6
3-WAY PAGE 18

Rodgers Stamp

Rodgers Builders, Inc.

___ No Exception Taken ___ Make Corrections Noted

___ Rejected ___ Revise and Resubmit

___ Submit Specified Item X Reviewed

Corrections and comments are only for general conformance with the design concepts of the project and general compliance with the information given in the contract documents. Action shown is subject to the requirements of the plans and specifications. This review does not relieve the subcontractor/vendor from compliance with requirements of the drawings and specifications. Subcontractor /vendor is responsible for dimensions which shall be confirmed and correlated at the job site, fabrication process, and techniques of construction: coordination of their work with that of all other trades and the satisfactory performance of their work.

Colton Meyer — By

04/23/2025 — Date

No. 23 05 23 - 001.0

A/E Stamp

SHOP DRAWING REVIEW

- [ ] NO EXCEPTION TAKEN
- [x] APPROVED AS NOTED
- [ ] REVISE AND RESUBMIT
- [ ] REJECTED

optima engineering

REVIEW IS FOR GENERAL COMPLIANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS. MECHANICAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR CORRECTNESS, DIMENSIONS, DETAILS, QUANTITIES AND ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT, INCLUDING STRUCTURAL AND ELECTRICAL CHANGES, MAINTENANCE ACCESS, CLEARANCES, BUILDING ALTERATIONS, PIPING, SHEET METAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, ETC.

BY Kelsey Sheehan **DATE** 5/8/2025

OPTIMA: PRODUCTS ARE ACCEPTABLE, SIZES AND QUANITITES ARE NOT VERIFIED WITH THIS REVIEW

FAULKNER HAYNES

HMI Hahn-Mason Air Systems, Inc.

INSIGHT PARTNERS

SUBMITTAL

FOR APPROVAL

COIL HOOK-UP KITS SUBMITTAL DATA

FOR

Coltrane-Webb / Beverly Hills Replacement Elementary School

61 Spring St. NW, Concord, NC 28025

Owner:	Cabarrus County Schools
Mechanical Engineer:	Optima Engineering
Mechanical Contractor:	Superior Mechanical

Date:	1/22/2025
Revision:	0
Submitted By:	Adam Parker
Equipment Manufacturers:	Pro Hydronics
Equipment Types:	Coil Hook-Up Kits + Stainless Steel Hoses
Specification Section:	23 05 23 – General-Duty Valves for HVAC Piping
Unit Tags:	VAV's Per Plans
Estimated Leadtime:	3 Weeks

FAULKNER HAYNES HMI Hahn-Mason Air Systems, Inc. INSIGHT PARTNERS

SUBMITTAL
FOR APPROVAL

Submittal Scope
COIL HOOKUP KITS

To: Superior Mechanical
Attn: Ben Wyke

Date: January 22, 2025

Project Name: **Coltrane-Webb/Beverly Hills Elementary**
Concord, NC

Engineer: Optima Engineering
Charlotte, NC

Description
Pro Hydronics (QTY. 81) "A2I" Kits The **A2I** kit consists of (1) Model AFLB automatic flow limiting device, (1) Model IVY integral full-port ball valve with wye-strainer and (1) Model AU accessory union. *Includes 18" Stainless Steel Hoses (QTY. 5) "A3I" Kits The **A3I** kit consists of (1) Model AFLB automatic flow limiting device, (1) Model IVY integral full-port ball valve with wye-strainer and (1) Model AU accessory union. Contractor to install bypass piping in plug of IVY strainer. *Includes 18" Stainless Steel Hoses (QTY. 86) Manual Air Vents (QTY. 86) Model "CBV" Valve The **CBV** combines a fixed end FNPT or SWT end ball valve and brass venturi that provides highly accurate flow measurement. The efficient low loss venturi design provides effective flow balancing with minimal pressure loss. The CBV comes standard with two P/T ports and a ball valve memory stop. The union side connection options include MNPT, FNPT, SWT, and a variety of reductions.

2-Way VAV Coil Hookup Kits

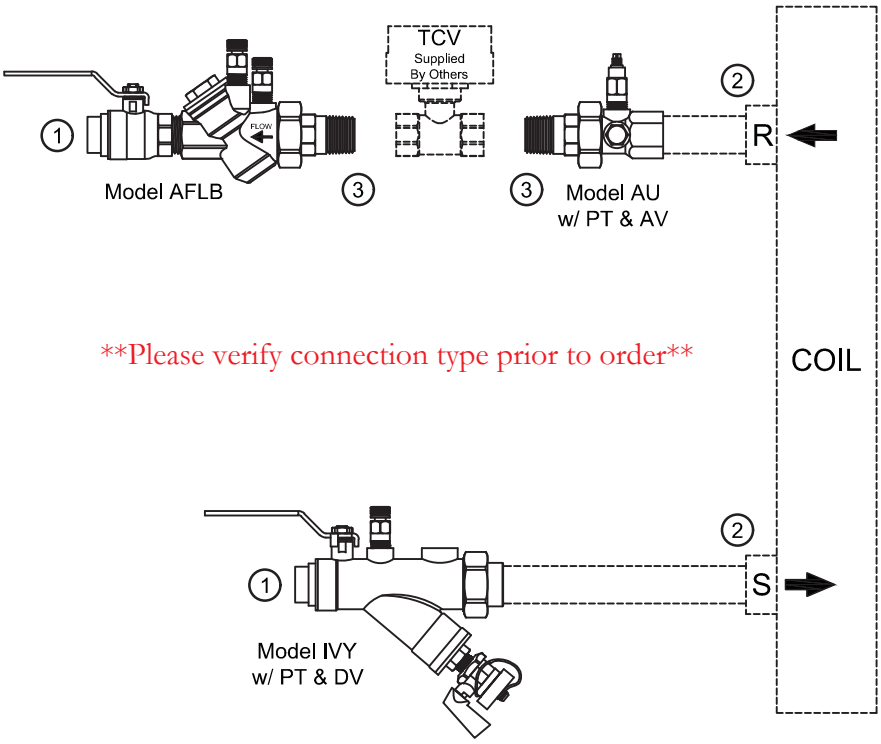
PRO Hydronic Specialties

Automatic Balancing 2-Way Kit - A2I Submittal

	#	Size	Connection Type
Runout	1	3/4"	FPT
Coil	2	3/4"	FPT
TCV	3	1/2"	MPT
Services provided for additional fee:			
Extended Components	☐ Yes	☑ No	
Factory Mounted TCV	☐ Yes	☑ No	
Stainless Steel Trim	☐ Yes	☑ No	
Bag N Tag	☑ Yes	☐ No	

** 3/8" Coil Size available in SWT ONLY.*

*** ProPress fittings supplied for additional fee.*



PRODUCT DESCRIPTION: The Automatic Balancing Valve Kit is a packaged and partially preassembled grouping of components required to complete installation of a terminal unit. Temperature control valves, piping, and coils are supplied "by others". Mounting and testing of the customer supplied TCV is available at an additional charge.

QUANTITY	GPM	TAGGING INFORMATION
□1		See next page for tagging information
□1		Manual air vents □ships loose, field installed on IVY component□
□1		3/4" Full port ball valves □ships loose, field installed in bypass line□

JOB NAME		REPRESENTATIVE			
ENGINEER		REF/PO#		DATE	
CONTRACTOR		SUBMITTED BY		DATE	

Tag	GPM	Runout	3-Way
VAV-1.1	1.0	3/4"	-
VAV-1.2	1.0	3/4"	-
VAV-1.3	1.1	3/4"	-
VAV-1.4	1.7	3/4"	-
VAV-1.5	1.0	3/4"	-
VAV-1.6	1.0	3/4"	-
VAV-1.7	1.7	3/4"	-
VAV-1.8	1.3	3/4"	-
VAV-1.9	1.4	3/4"	-
VAV-1.10	1.3	3/4"	-
VAV-1.11	1.7	3/4"	-
~~VAV-1.12~~	~~1.8~~	~~3/4"~~	~~3-way~~

Tag	GPM	Runout	3-Way
VAV-2.1	1.0	3/4"	-
VAV-2.2	1.0	3/4"	-
VAV-2.3	1.0	3/4"	-
VAV-2.4	1.2	3/4"	-
VAV-2.5	1.5	3/4"	-
VAV-2.6	1.0	3/4"	-
VAV-2.7	1.4	3/4"	-
VAV-2.8	1.7	3/4"	-
VAV-2.9	1.4	3/4"	-
VAV-2.10	1.7	3/4"	-
VAV-2.11	1.4	3/4"	-
VAV-2.12	1.4	3/4"	-
VAV-2.13	1.7	3/4"	-
~~VAV-2.14~~	~~1.8~~	~~3/4"~~	~~3-way~~
VAV-2.16	1.0	3/4"	-

Tag	GPM	Runout	3-Way
VAV-3.1	1.0	3/4"	-
VAV-3.2	1.1	3/4"	-
VAV-3.3	1.0	3/4"	-
VAV-3.4	1.8	3/4"	-
VAV-3.5	1.1	3/4"	-
VAV-3.6	1.4	3/4"	-
VAV-3.7	1.4	3/4"	-
VAV-3.8	1.2	3/4"	-
VAV-3.9	1.2	3/4"	-
VAV-3.10	1.4	3/4"	-
VAV-3.11	1.1	3/4"	-
VAV-3.12	1.4	3/4"	-
VAV-3.13	1.4	3/4"	-
VAV-3.14	1.2	3/4"	-
VAV-3.15	1.2	3/4"	-
~~VAV-3.16~~	~~1.6~~	~~3/4"~~	~~3-way~~
VAV-3.17	1.7	3/4"	-

Tag	GPM	Runout	3-Way
VAV-4.1	1.0	3/4"	-
VAV-4.2	1.0	3/4"	-
VAV-4.3	1.0	3/4"	-
VAV-4.4	1.5	3/4"	-
VAV-4.5	1.8	3/4"	-
VAV-4.6	1.2	3/4"	-
VAV-4.7	1.3	3/4"	-
VAV-4.8	1.1	3/4"	-
VAV-4.9	1.3	3/4"	-
VAV-4.10	1.4	3/4"	-
VAV-4.11	1.2	3/4"	-
VAV-4.12	1.2	3/4"	-
~~VAV-4.13~~	~~1.7~~	~~3/4"~~	~~3-way~~
VAV-4.14	1.8	3/4"	-
VAV-4.16	1.0	3/4"	-

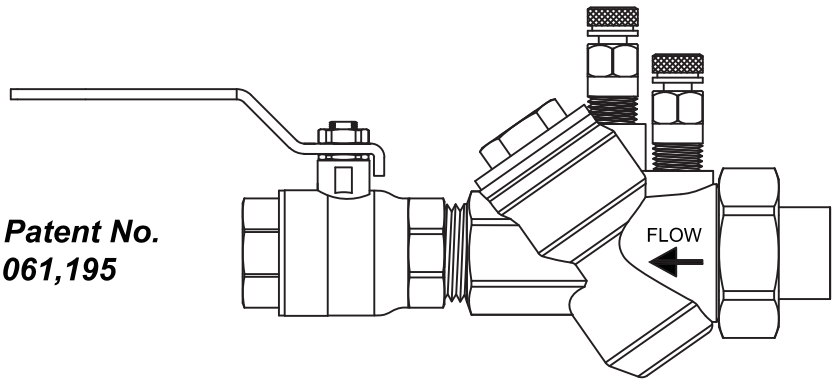
Tag	GPM	Runout	3-Way
VAV-8.1	1.3	3/4"	-
VAV-8.2	1.3	3/4"	-
VAV-8.3	1.0	3/4"	-
VAV-8.4	1.0	3/4"	-
VAV-8.5	1.0	3/4"	-
VAV-8.6	1.3	3/4"	-

Tag	GPM	Runout	3-Way
VAV-9.1	1.0	3/4"	-
VAV-9.2	1.0	3/4"	-
VAV-9.3	1.3	3/4"	-
VAV-9.4	1.8	3/4"	-
VAV-9.5	1.0	3/4"	-
VAV-9.6	1.8	3/4"	-
VAV-9.7	1.6	3/4"	-

Tag	GPM	Runout	3-Way
~~VAV-10.1~~	~~1.0~~	~~3/4"~~	~~3-way~~
VAV-10.2	1.0	3/4"	-
VAV-10.3	1.0	3/4"	-
VAV-10.4	1.0	3/4"	-
VAV-10.5	1.0	3/4"	-
VAV-10.6	1.0	3/4"	-
VAV-10.7	1.0	3/4"	-
VAV-10.8	1.0	3/4"	-
VAV-10.9	1.0	3/4"	-
VAV-10.10	1.0	3/4"	-
VAV-10.11	1.0	3/4"	-
VAV-10.12	1.0	3/4"	-

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"



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

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	
Body	Forged Brass ASTM B283-06 or Cast Brass ASTM B763-08A
O-Ring	EPDM
Tail Piece, Packing Nut	Brass ASTM B124-09, B228-06, or B763-08A
Union Nut	Brass ASTM B455
Flow Cartridge	ASTM A582 Type 303 Stainless Steel
Diaphragm	EPDM
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

Confirm port type acceptable

STANDARD OPERATING SPECIFICATIONS	
Control Range:	2 psi - 60+ psi
Accuracy:	±5%
Max Working Pressure:	600 WOG / CWP
Max Operating Temperature:	40°F to 250°F
Start-Up Head Loss:	5 Feet of H_2O

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.

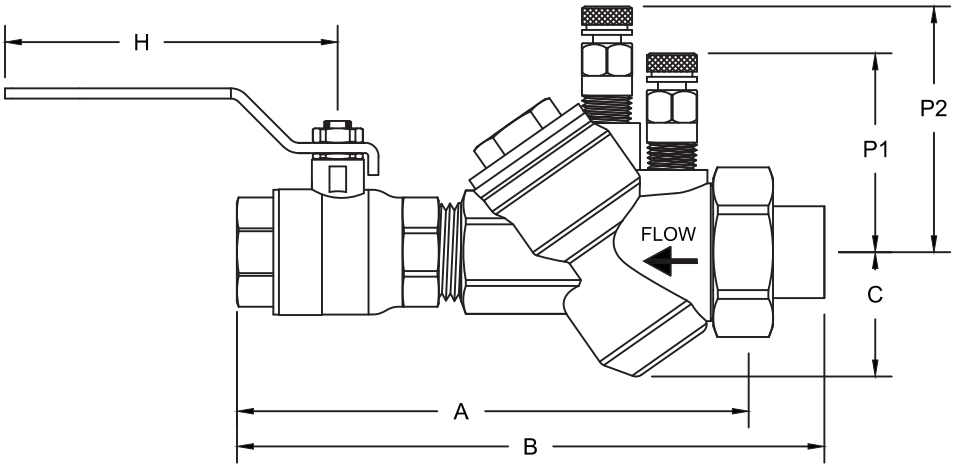
Valve Size		FLOW RATES (GPM) * CONTROL RANGE 2 - 60+ PSID **																								
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	½" - 1" L	.33	.50	.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12
B	1" H - 1½" L	5	5.5	6	6.5	7	8	9	10	12	13	14	15	16	18	20	22	24	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

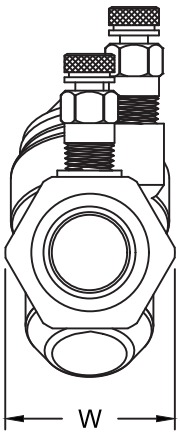
* *Custom flow rates can be calibrated at the factory for an additional charge.*
Unless confirmed as special, flow rates will default to standard flow rate.

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 - ½" - 1" L





BALL VALVE SIZE AND TYPE	A	TAIL PIECE	B	WEIGHT (lbs)	C	H	P1	P2	W
½" SWT	5.7	- M	7.3	1.8	1.3	3.7	2.3	2.8	1.7
		½" - F	6.4	1.8					
		- S	6.4	1.7					
½" FPT	5.4	- M	7.0	1.8	1.3	3.7	2.3	2.8	1.7
		½" - F	6.0	1.8					
		- S	6.0	1.7					
¾" SWT	6.6	- M	8.1	2.4	1.4	3.8	2.0	2.6	1.8
		½" - F	7.3	2.4					
		- S	7.3	2.4					
		- M	8.3	2.5					
		¾" - F	7.2	2.4					
		- S	7.2	2.4					
¾" FPT	6.1	- M	7.5	2.4	1.4	3.8	2.0	2.6	1.8
		½" - F	7.2	2.5					
		- S	6.8	2.4					
		- M	7.8	2.5					
		¾" - F	7.0	2.4					
		- S	6.8	2.4					
1" SWT	7.3	½" - M	9.5	3.5	1.2	5.0	2.0	2.5	2.1
		- M	9.5	3.5					
		¾" - 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	½" - M	8.7	3.5	1.2	5.0	2.0	2.5	2.1
		- M	8.7	3.5					
		¾" - S	7.5	3.3					
		- M	8.7	3.6					
		1" - F	7.6	3.4					
		- S	7.6	3.3					

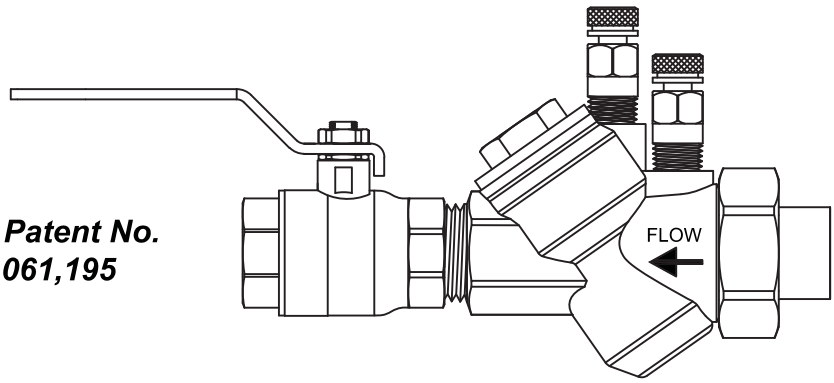
Note: Dimensions listed above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions and material specifications. Sweat size listed is nominal and will differ from the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

AFLB Series Submittal

Automatic Pressure Independent Flow Limiter w/ Ball Valve

A: AFLB - ½" - 1" L
B: AFLB - 1" H - 1½" L
C: AFLB - 1½" H - 2"

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



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

MODEL DESIGNATION	VALVE SIZE	FIXED END LINE SIZE	FIXED END CONNECTION	TAIL PIECE SIZE	TAIL PIECE CONNECTION	FLOW RATE CODE	OPTIONS (separate w/ comma)
AFLB - Automatic Flow Limiter w/ Ball Valve	A B C	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	*Use chart below for code or specify special rate.*	XH - Extended Handle XP - Extended PT FM - Flow Measurement

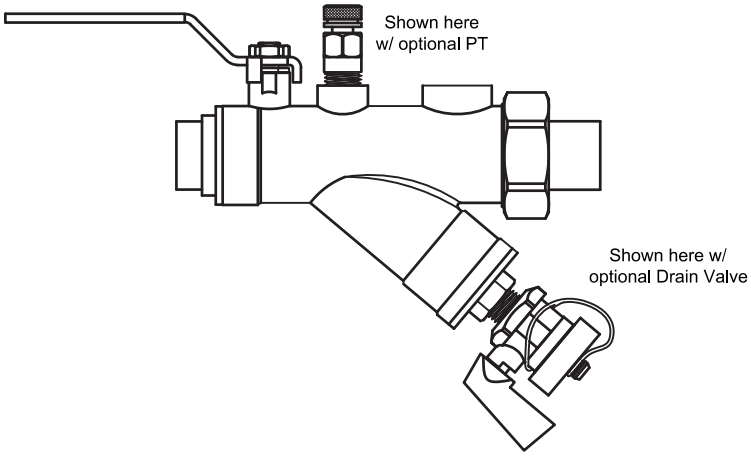
Valve Size		FLOW RATE CODES (GPM)* CONTROL RANGE 2 - 60+ PSID **																								
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	½" - 1" L	.33	.50	.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12
B	1" H - 1½" L	5	5.5	6	6.5	7	8	9	10	12	13	14	15	16	18	20	22	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.

JOB NAME: REPRESENTATIVE:
ENGINEER: REF/PO#: DATE:
CONTRACTOR: SUBMITTED BY: DATE:

PART # (See table above)	TAGGING/JOB INFORMATION	GPM	QUANTITY

IVY Series Specifications
Integral Ball Valve/Wye Strainer/Union

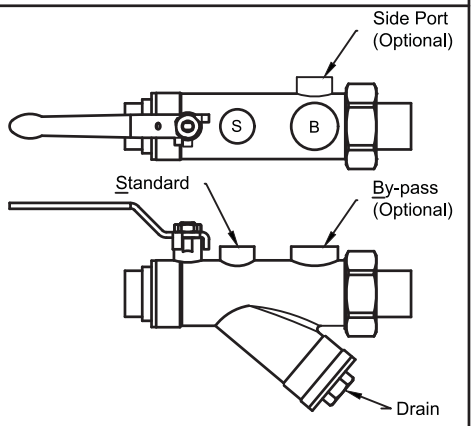


PRODUCT DESCRIPTION: The IVY is an integral ball valve, wye-strainer and union. The IVY uses a full-port ball valve for positive shut-off and offers two (2) predrilled ¼" taps for accessories to be installed. A ¼" standard port and by-pass tap are provided at the forward 12:00 position. The bypass port 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 ¼" port. The strainer has a 20-mesh stainless steel screen to aid in debris removal. The strainer cap has a ¼" 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	
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	Crome 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

PORT LOCATIONS

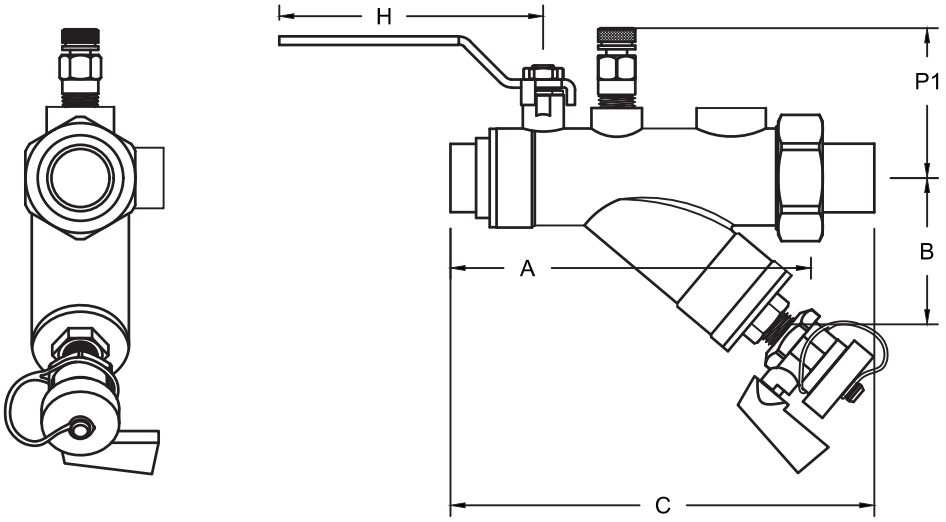


Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice or liability.

PRODUCT SPECIFICATIONS:

- Device shall have a full port isolation valve
- Device shall have a 20 mesh accessible strainer sleeve(0standard) 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

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

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.

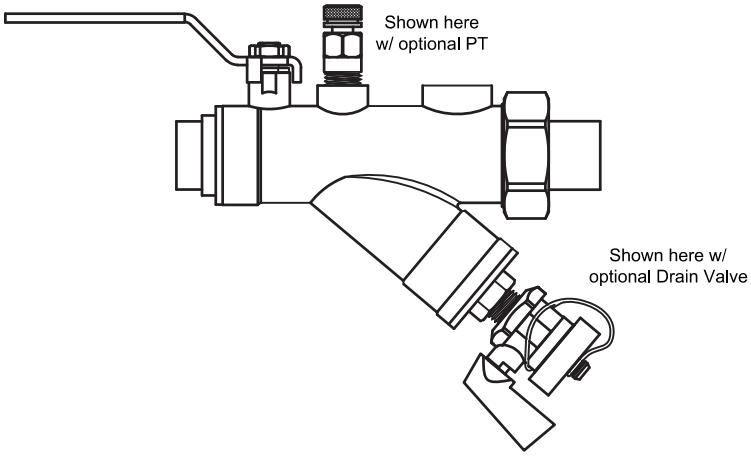
* R = Ratio of screen surface area to cross-sectional pipe diameter

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

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

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

IVY Series Submittal
Integral Ball Valve/Wye Strainer/Union



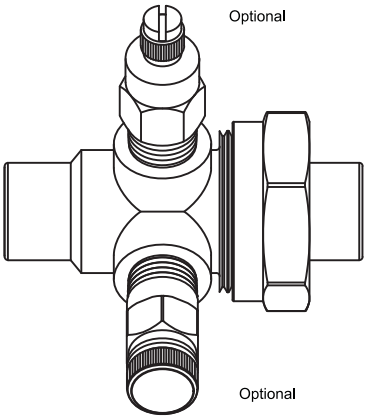
IVY - X - X - X - X - XX - XX - X

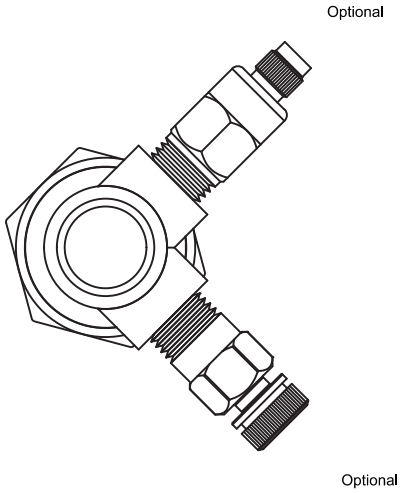
MODEL DESIGNATION	LINE SIZE	END CONNECTION	TAIL PIECE SIZE	TAIL PIECE CONNECTION	FIRST ACCESSORY OPTION	SECOND ACCESSORY OPTION	BYPASS OPTION
IVY - Integral Strainer Valve	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	XH - Extended Handle PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve	XH - Extended Handle PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve	B = Bypass *Bypass tap size provided on IVY Dimensions Form : SUBIVY2*

JOB NAME:	CUSTOMER:	
ENGINEER:	REF/PO#:	DATE:
CONTRACTOR:	SUBMITTED BY:	DATE:

PART # (See table above)	TAGGING/JOB INFORMATION	QUANTITY

AU Series Specifications
Accessory Union





Product Description: The AU brass accessory union provides for component isolation. Port section contains two ¼" 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 ¼" 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.

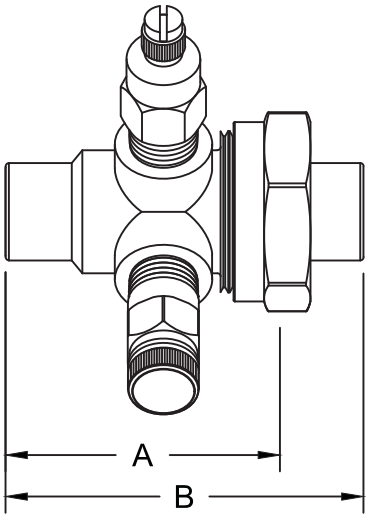
STANDARD MATERIAL SPECIFICATIONS	
Accessory Union O-Ring Tail Piece	Forged Brass ASTM B283-06 EPDM Brass ASTM B124-09, B228-06, or B763-08A
Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials,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

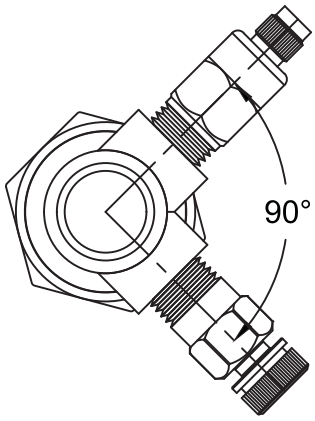
PRODUCT SPECIFICATIONS:

- ¼" ports shall be located 90° distal on a rotational axis
- Integrated ports shall provide functionality for numerous options

PRO Hydronic Specialties

AU Series Dimensions
Accessory Union



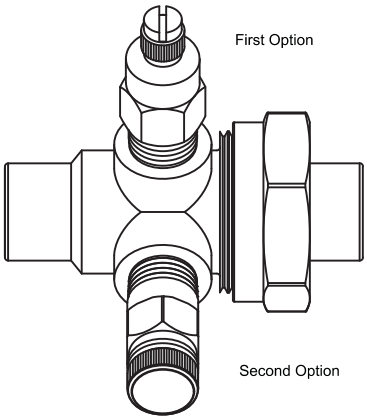


MODEL	SIZE	A	LENGTH "B" / WEIGHT OF *PRO*-AU AND TAIL PIECE CONNECTION											
			½" M	lbs	½" S	lbs	½" F	lbs						
AU1M	½"	2.7	4.2	0.6	3.3	0.6	3.3	0.6						
AU1S		2.1	3.7	0.5	2.8	0.4	2.8	0.5						
AU1F		2.0	3.6	0.6	2.7	0.5	2.7	0.5						
			½" M	lbs	½" S	lbs	½" F	lbs	¾" M	lbs	¾" S	lbs	¾" F	lbs
AU2M	¾"	2.5	4.0	0.7	3.2	0.6	3.6	0.8	4.2	0.7	3.2	0.6	3.3	0.7
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
			½" M	lbs	¾" M	lbs	¾" S	lbs	1" M	lbs	1" S	lbs	1" F	lbs
AU3M	1"	2.6	4.6	1.1	4.6	1.1	3.4	0.9	4.6	1.2	3.6	0.9	3.5	1.0
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
			½" M	lbs	¾" M	lbs	1" M	lbs	1¼" M	lbs	1¼" S	lbs	1¼" F	lbs
AU4M	1¼"	3.0	4.7	1.7	5.0	1.8	5.0	1.9	5.0	1.9	4.1	1.5	4.0	1.6
AU4S		3.0	4.7	1.5	4.9	1.7	4.9	1.7	5.0	1.8	4.1	1.4	4.0	1.5
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
			¾" M	lbs	1" M	lbs	1¼" M	lbs	1½" M	lbs	1½" S	lbs	1½" F	lbs
AU5M	1½"	3.0	4.9	2.3	5.5	2.6	5.5	2.7	5.5	2.5	4.2	2.1	4.3	2.3
AU5S		3.0	4.9	2.2	5.5	2.6	5.5	2.6	5.5	2.5	4.2	2.0	4.2	2.2
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
			1" M	lbs	1¼" M	lbs	1½" M	lbs	2" M	lbs	2" S	lbs	2" F	lbs
AU6M	2"	3.4	6.2	4.3	6.2	4.0	6.2	4.0	6.2	4.1	4.8	3.1	4.6	3.4
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.

PRO Hydronic Specialties

AU Series Submittal
Accessory Union



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

MODEL DESIGNATION	BODY SIZE	BODY CONNECTIONS	TAIL PIECE SIZE	TAIL PIECE CONNECTION	FIRST OPTION	SECOND OPTION
AU - Accessory Union	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve	PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve

JOB NAME: REPRESENTATIVE:

ENGINEER: REF/PO#: DATE:

CONTRACTOR: SUBMITTED BY: DATE:

PART # (See table above)	TAGGING/JOB INFORMATION	QUANTITY

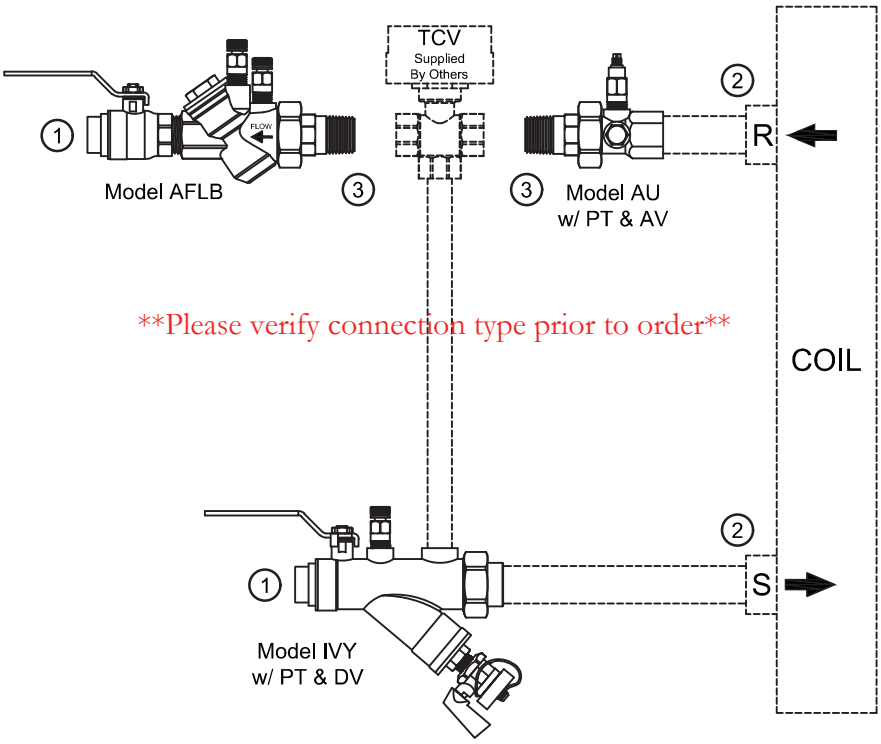
3-Way VAV Coil Hookup Kits

Automatic Balancing 3-Way Kit - A3I Submittal

	#	Size	Connection Type
Runout	1	3/4"	FPT
Coil	2	3/4"	FPT
TCV	3	1/2"	MPT
Services provided for additional fee:			
Extended Components	☐ Yes	☑ No	
Factory Mounted TCV	☐ Yes	☑ No	
Stainless Steel Trim	☐ Yes	☑ No	
Bag N Tag	☑ Yes	☐ No	

** 3/8" Coil Size available in SWT ONLY.*

*** ProPress fittings supplied for additional fee.*



PRODUCT DESCRIPTION: The Automatic Balancing Valve Kit is a packaged and partially preassembled grouping of components required to complete installation of a terminal unit. Temperature control valves, piping, and coils are supplied "by others". Mounting and testing of the customer supplied TCV is available at an additional charge.

QUANTITY	GPM	TAGGING INFORMATION
☐		See next page for tagging information
☐		Manual air vents ☐ships loose, field installed on IBU component☐
☐		3/4" Full port ball valves ☐ships loose, field installed in bypass line☐

JOB NAME		REPRESENTATIVE			
ENGINEER		REF/PO#		DATE	
CONTRACTOR		SUBMITTED BY		DATE	

Tag	GPM	Runout	3-Way
VAV-1.1	1.0	3/4"	-
VAV-1.2	1.0	3/4"	-
VAV-1.3	1.1	3/4"	-
VAV-1.4	1.7	3/4"	-
VAV-1.5	1.0	3/4"	-
VAV-1.6	1.0	3/4"	-
VAV-1.7	1.7	3/4"	-
VAV-1.8	1.3	3/4"	-
VAV-1.9	1.4	3/4"	-
VAV-1.10	1.3	3/4"	-
VAV-1.11	1.7	3/4"	-
VAV-1.12	1.8	3/4"	3-way

Tag	GPM	Runout	3-Way
VAV-2.1	1.0	3/4"	-
VAV-2.2	1.0	3/4"	-
VAV-2.3	1.0	3/4"	-
VAV-2.4	1.2	3/4"	-
VAV-2.5	1.5	3/4"	-
VAV-2.6	1.0	3/4"	-
VAV-2.7	1.4	3/4"	-
VAV-2.8	1.7	3/4"	-
VAV-2.9	1.4	3/4"	-
VAV-2.10	1.7	3/4"	-
VAV-2.11	1.4	3/4"	-
VAV-2.12	1.4	3/4"	-
VAV-2.13	1.7	3/4"	-
VAV-2.14	1.8	3/4"	3-way
VAV-2.15	1.0	3/4"	-

Tag	GPM	Runout	3-Way
VAV-3.1	1.0	3/4"	-
VAV-3.2	1.1	3/4"	-
VAV-3.3	1.0	3/4"	-
VAV-3.4	1.8	3/4"	-
VAV-3.5	1.1	3/4"	-
VAV-3.6	1.4	3/4"	-
VAV-3.7	1.4	3/4"	-
VAV-3.8	1.2	3/4"	-
VAV-3.9	1.2	3/4"	-
VAV-3.10	1.4	3/4"	-
VAV-3.11	1.1	3/4"	-
VAV-3.12	1.4	3/4"	-
VAV-3.13	1.4	3/4"	-
VAV-3.14	1.2	3/4"	-
VAV-3.15	1.2	3/4"	-
VAV-3.16	1.6	3/4"	3-way
VAV-3.17	1.7	3/4"	-

Tag	GPM	Runout	3-Way
VAV-4.1	1.0	3/4"	-
VAV-4.2	1.0	3/4"	-
VAV-4.3	1.0	3/4"	-
VAV-4.4	1.5	3/4"	-
VAV-4.5	1.8	3/4"	-
VAV-4.6	1.2	3/4"	-
VAV-4.7	1.3	3/4"	-
VAV-4.8	1.1	3/4"	-
VAV-4.9	1.3	3/4"	-
VAV-4.10	1.4	3/4"	-
VAV-4.11	1.2	3/4"	-
VAV-4.12	1.2	3/4"	-
VAV-4.13	1.7	3/4"	3-way
VAV-4.14	1.8	3/4"	-
VAV-4.16	1.0	3/4"	-

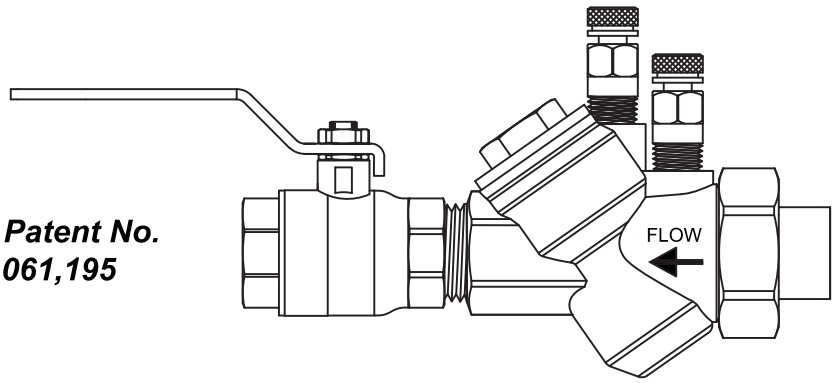
Tag	GPM	Runout	3-Way
VAV-8.1	1.3	3/4"	-
VAV-8.2	1.3	3/4"	-
VAV-8.3	1.0	3/4"	-
VAV-8.4	1.0	3/4"	-
VAV-8.5	1.0	3/4"	-
VAV-8.6	1.3	3/4"	-

Tag	GPM	Runout	3-Way
VAV-9.1	1.0	3/4"	-
VAV-9.2	1.0	3/4"	-
VAV-9.3	1.3	3/4"	-
VAV-9.4	1.8	3/4"	-
VAV-9.5	1.0	3/4"	-
VAV-9.6	1.8	3/4"	-
VAV-9.7	1.6	3/4"	-

Tag	GPM	Runout	3-Way
VAV-10.1	1.0	3/4"	3-way
VAV-10.2	1.0	3/4"	-
VAV-10.3	1.0	3/4"	-
VAV-10.4	1.0	3/4"	-
VAV-10.5	1.0	3/4"	-
VAV-10.6	1.0	3/4"	-
VAV-10.7	1.0	3/4"	-
VAV-10.8	1.0	3/4"	-
VAV-10.9	1.0	3/4"	-
VAV-10.10	1.0	3/4"	-
VAV-10.11	1.0	3/4"	-
VAV-10.12	1.0	3/4"	-

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"



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

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	
Body	Forged Brass ASTM B283-06 or Cast Brass ASTM B763-08A
O-Ring	EPDM
Tail Piece, Packing Nut	Brass ASTM B124-09, B228-06, or B763-08A
Union Nut	Brass ASTM B455
Flow Cartridge	ASTM A582 Type 303 Stainless Steel
Diaphragm	EPDM
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

Confirm port type acceptable

STANDARD OPERATING SPECIFICATIONS	
Control Range:	2 psi - 60+ psi
Accuracy:	±5%
Max Working Pressure:	600 WOG / CWP
Max Operating Temperature:	40°F to 250°F
Start-Up Head Loss:	5 Feet of H_2O

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.

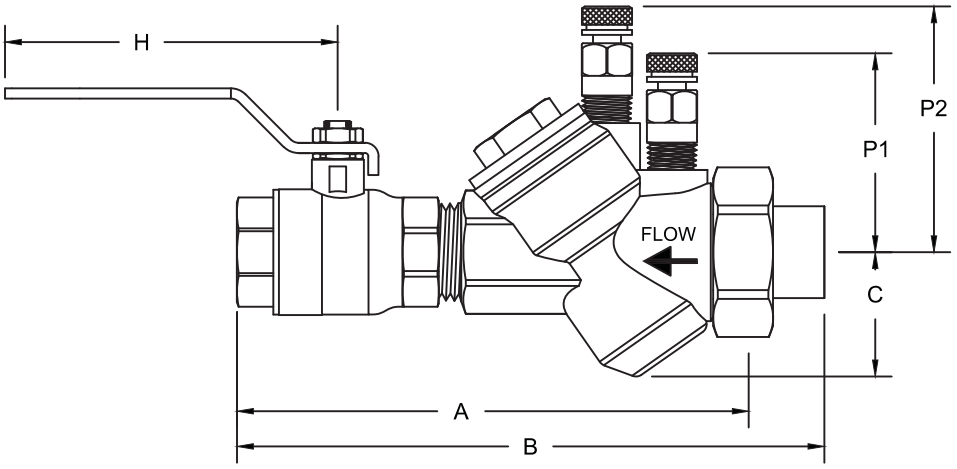
Valve Size		FLOW RATES (GPM) * CONTROL RANGE 2 - 60+ PSID **																									
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	½" - 1" L	.33	.50	.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12
B	1" H - 1½" L	5	5.5	6	6.5	7	8	9	10	12	13	14	15	16	18	20	22	24	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

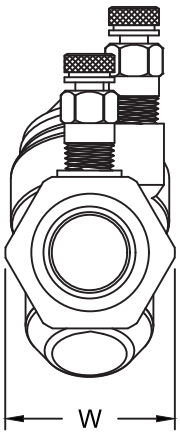
** Custom flow rates can be calibrated at the factory for an additional charge.*
Unless confirmed as special, flow rates will default to standard flow rate.

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 - ½" - 1" L





BALL VALVE SIZE AND TYPE	A	TAIL PIECE	B	WEIGHT (lbs)	C	H	P1	P2	W
½" SWT	5.7	- M	7.3	1.8	1.3	3.7	2.3	2.8	1.7
		½" - F	6.4	1.8					
		- S	6.4	1.7					
½" FPT	5.4	- M	7.0	1.8	1.3	3.7	2.3	2.8	1.7
		½" - F	6.0	1.8					
		- S	6.0	1.7					
¾" SWT	6.6	- M	8.1	2.4	1.4	3.8	2.0	2.6	1.8
		½" - F	7.3	2.4					
		- S	7.3	2.4					
		- M	8.3	2.5					
		¾" - F	7.2	2.4					
		- S	7.2	2.4					
¾" FPT	6.1	- M	7.5	2.4	1.4	3.8	2.0	2.6	1.8
		½" - F	7.2	2.5					
		- S	6.8	2.4					
		- M	7.8	2.5					
		¾" - F	7.0	2.4					
		- S	6.8	2.4					
1" SWT	7.3	½" - M	9.5	3.5	1.2	5.0	2.0	2.5	2.1
		- M	9.5	3.5					
		¾" - 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	½" - M	8.7	3.5	1.2	5.0	2.0	2.5	2.1
		- M	8.7	3.5					
		¾" - S	7.5	3.3					
		- M	8.7	3.6					
		1" - F	7.6	3.4					
		- S	7.6	3.3					

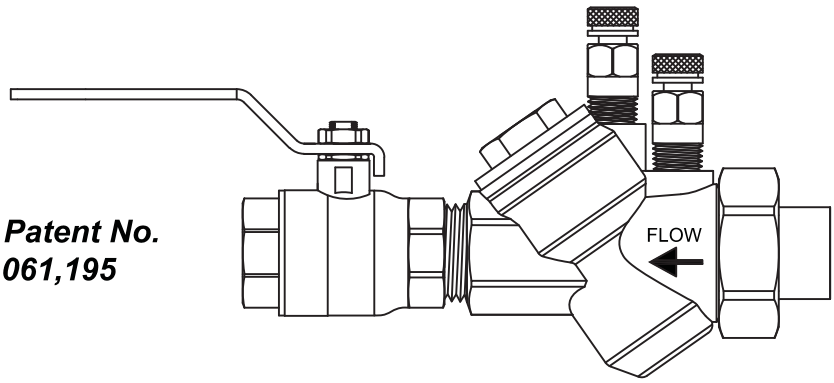
Note: Dimensions listed above do not include ProPress or any other special fittings or adapters. All dimensions, weights, and materials are subject to minor variations. Consult with factory for confirmation of dimensions and material specifications. Sweat size listed is nominal and will differ from the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

AFLB Series Submittal

Automatic Pressure Independent Flow Limiter w/ Ball Valve

A: AFLB - ½" - 1" L
B: AFLB - 1" H - 1½" L
C: AFLB - 1½" H - 2"

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



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

MODEL DESIGNATION	VALVE SIZE	FIXED END LINE SIZE	FIXED END CONNECTION	TAIL PIECE SIZE	TAIL PIECE CONNECTION	FLOW RATE CODE	OPTIONS (separate w/ comma)
AFLB - Automatic Flow Limiter w/ Ball Valve	A B C	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	*Use chart below for code or specify special rate.*	XH - Extended Handle XP - Extended PT FM - Flow Measurement

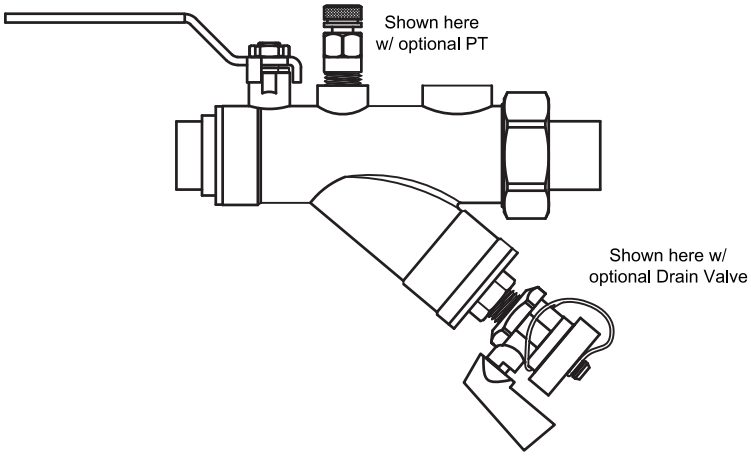
Valve Size		FLOW RATE CODES (GPM)* CONTROL RANGE 2 - 60+ PSID **																								
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	½" - 1" L	.33	.50	.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12
B	1" H - 1½" L	5	5.5	6	6.5	7	8	9	10	12	13	14	15	16	18	20	22	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.

JOB NAME: REPRESENTATIVE:
ENGINEER: REF/PO#: DATE:
CONTRACTOR: SUBMITTED BY: DATE:

PART # (See table above)	TAGGING/JOB INFORMATION	GPM	QUANTITY

IVY Series Specifications
Integral Ball Valve/Wye Strainer/Union

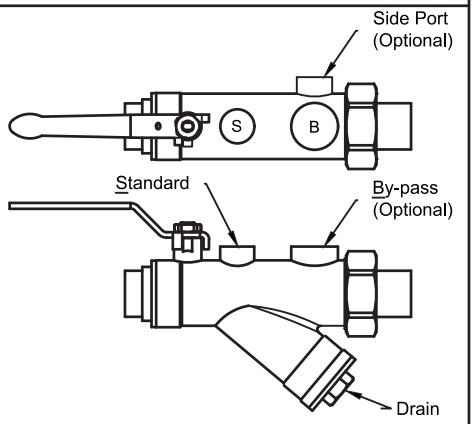


PRODUCT DESCRIPTION: The IVY is an integral ball valve, wye-strainer and union. The IVY uses a full-port ball valve for positive shut-off and offers two (2) predrilled ¼" taps for accessories to be installed. A ¼" standard port and by-pass tap are provided at the forward 12:00 position. The bypass port 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 ¼" port. The strainer has a 20-mesh stainless steel screen to aid in debris removal. The strainer cap has a ¼" 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	
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	Crome 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

PORT LOCATIONS

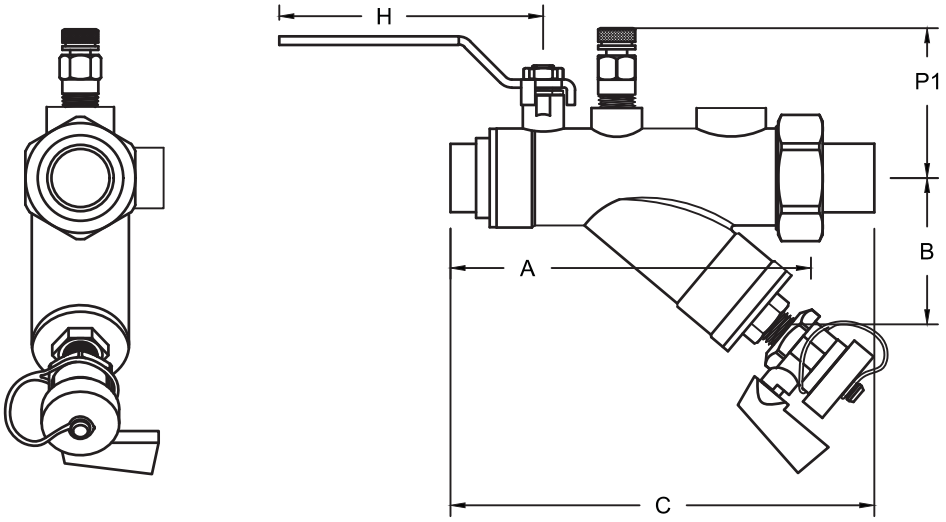


Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials, and/or specifications without notice or liability.

PRODUCT SPECIFICATIONS:

- Device shall have a full port isolation valve
- Device shall have a 20 mesh accessible strainer sleeve(0standard) 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

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

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.

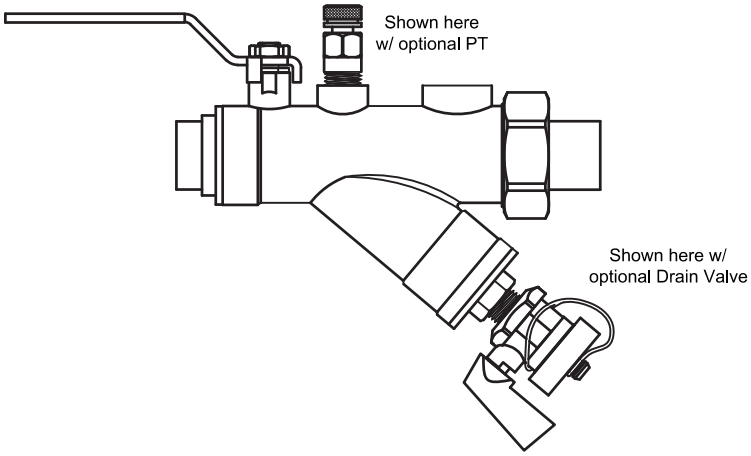
* R = Ratio of screen surface area to cross-sectional pipe diameter

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

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

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

IVY Series Submittal
Integral Ball Valve/Wye Strainer/Union



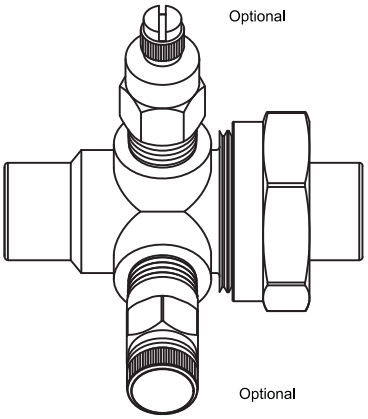
IVY - X - X - X - X - XX - XX - X

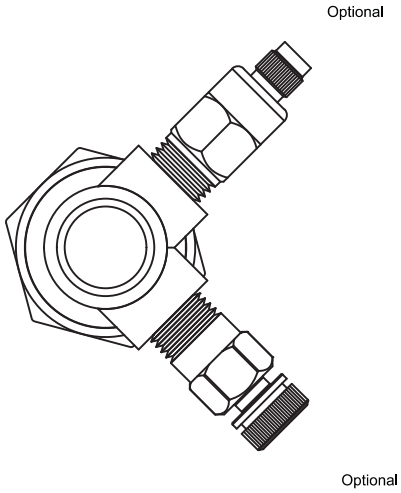
MODEL DESIGNATION	LINE SIZE	END CONNECTION	TAIL PIECE SIZE	TAIL PIECE CONNECTION	FIRST ACCESSORY OPTION	SECOND ACCESSORY OPTION	BYPASS OPTION
IVY - Integral Strainer Valve	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	XH - Extended Handle PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve	XH - Extended Handle PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve	B = Bypass *Bypass tap size provided on IVY Dimensions Form : SUBIVY2*

JOB NAME:	CUSTOMER:	
ENGINEER:	REF/PO#:	DATE:
CONTRACTOR:	SUBMITTED BY:	DATE:

PART # (See table above)	TAGGING/JOB INFORMATION	QUANTITY

AU Series Specifications
Accessory Union





Product Description: The AU brass accessory union provides for component isolation. Port section contains two ¼" 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 ¼" 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.

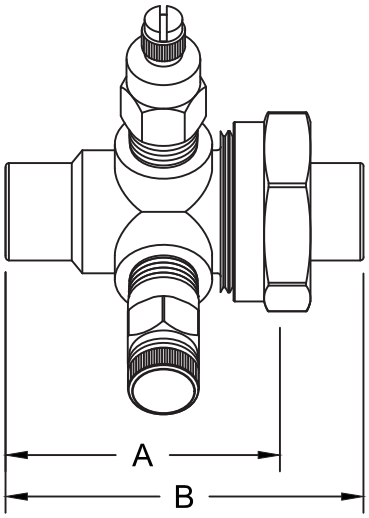
STANDARD MATERIAL SPECIFICATIONS	
Accessory Union O-Ring Tail Piece	Forged Brass ASTM B283-06 EPDM Brass ASTM B124-09, B228-06, or B763-08A
Specification information is provided to assist and is given without obligation or warranty. The Company reserves the right to make changes in design, materials,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

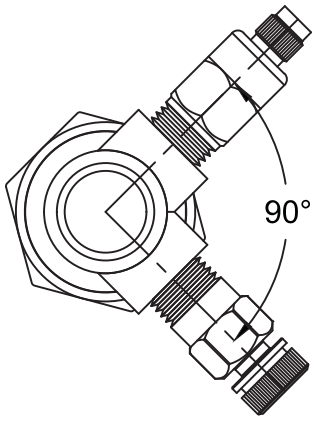
PRODUCT SPECIFICATIONS:

- ¼" ports shall be located 90° distal on a rotational axis
- Integrated ports shall provide functionality for numerous options

PRO Hydronic Specialties

AU Series Dimensions
Accessory Union



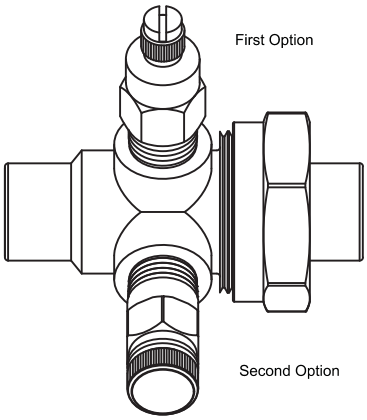


MODEL	SIZE	A	LENGTH "B" / WEIGHT OF *PRO*-AU AND TAIL PIECE CONNECTION											
			½" M	lbs	½" S	lbs	½" F	lbs						
AU1M	½"	2.7	4.2	0.6	3.3	0.6	3.3	0.6						
AU1S		2.1	3.7	0.5	2.8	0.4	2.8	0.5						
AU1F		2.0	3.6	0.6	2.7	0.5	2.7	0.5						
			½" M	lbs	½" S	lbs	½" F	lbs	¾" M	lbs	¾" S	lbs	¾" F	lbs
AU2M	¾"	2.5	4.0	0.7	3.2	0.6	3.6	0.8	4.2	0.7	3.2	0.6	3.3	0.7
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
			½" M	lbs	¾" M	lbs	¾" S	lbs	1" M	lbs	1" S	lbs	1" F	lbs
AU3M	1"	2.6	4.6	1.1	4.6	1.1	3.4	0.9	4.6	1.2	3.6	0.9	3.5	1.0
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
			½" M	lbs	¾" M	lbs	1" M	lbs	1¼" M	lbs	1¼" S	lbs	1¼" F	lbs
AU4M	1¼"	3.0	4.7	1.7	5.0	1.8	5.0	1.9	5.0	1.9	4.1	1.5	4.0	1.6
AU4S		3.0	4.7	1.5	4.9	1.7	4.9	1.7	5.0	1.8	4.1	1.4	4.0	1.5
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
			¾" M	lbs	1" M	lbs	1¼" M	lbs	1½" M	lbs	1½" S	lbs	1½" F	lbs
AU5M	1½"	3.0	4.9	2.3	5.5	2.6	5.5	2.7	5.5	2.5	4.2	2.1	4.3	2.3
AU5S		3.0	4.9	2.2	5.5	2.6	5.5	2.6	5.5	2.5	4.2	2.0	4.2	2.2
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
			1" M	lbs	1¼" M	lbs	1½" M	lbs	2" M	lbs	2" S	lbs	2" F	lbs
AU6M	2"	3.4	6.2	4.3	6.2	4.0	6.2	4.0	6.2	4.1	4.8	3.1	4.6	3.4
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.

PRO Hydronic Specialties

AU Series Submittal
Accessory Union



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

MODEL DESIGNATION	BODY SIZE	BODY CONNECTIONS	TAIL PIECE SIZE	TAIL PIECE CONNECTION	FIRST OPTION	SECOND OPTION
AU - Accessory Union	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	1 - ½" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	F - FPT S - SWT M - MPT	PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve	PT - Press/Temp Port XP - Extended PT AV - Manual Air Vent AX - Extended AV H1 - ¼" Hose-end Drain Valve

JOB NAME: REPRESENTATIVE:

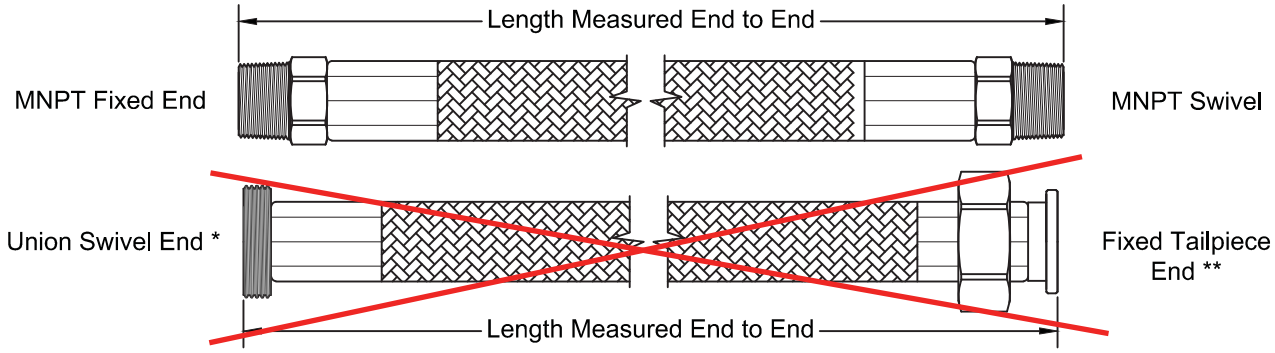
ENGINEER: REF/PO#: DATE:

CONTRACTOR: SUBMITTED BY: DATE:

PART # (See table above)	TAGGING/JOB INFORMATION	QUANTITY

Stainless Steel 18" Hoses

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. Other available end connection options are FNPT Swivel, Union Swivel *, and Fixed Tailpiece** connections; available for the ½", ¾", and 1" 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
	½" - 1" I.D. - Brass
End Fittings	1¼" - 2" I.D. - Steel Plated
	-40°F to 257°F (-40°C to 125°C)
End Connections	NPT Male, NPT Male Swivel, NPT Female Swivel (½" - 1"), Swivel Union * (½" - 1"), Tailpiece ** (½" - 1")
Temperature Ratings	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.

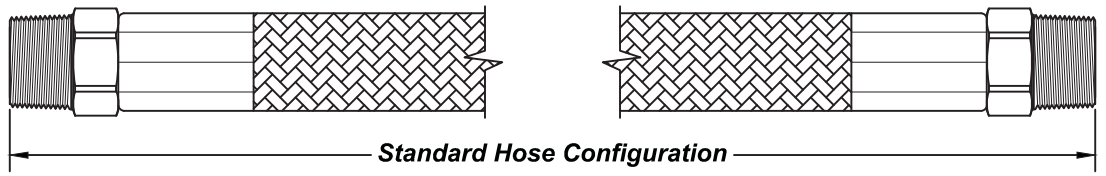
Size	Length	Working PSI	Bend Radius	** Cv
½"	12, 18, 24, 30, 36	500 PSI	5"	7
¾"	12, 18, 24, 30, 36	500 PSI	7"	20
1"	12, 18, 24, 30, 36	500 PSI	7"	43
1¼"	12, 18, 24, 30, 36	200 PSI	12"	76
1½"	18, 24, 30, 36	200 PSI	12"	130
2"	18, 24, 30, 36	200 PSI	20"	280

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.

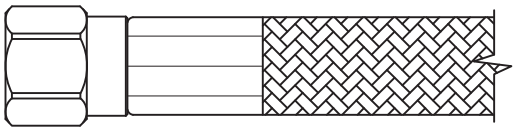
PRO Hydronic Specialties, L.L.C.
www.prohydronicspecialties.com
2306 Sherwin St.
Garland, TX 75041
Phone: 972-271-8801
Fax: 972-271-8802
Form Number: SUBHSS1
Revision 6 - 12/2012

HSS Series Options
Stainless Steel Braided Hose



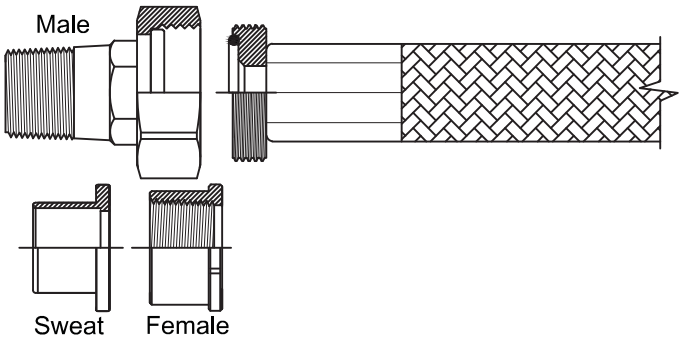
Additional End Connections

Swivel FNPT
Available in ½", ¾", & 1"



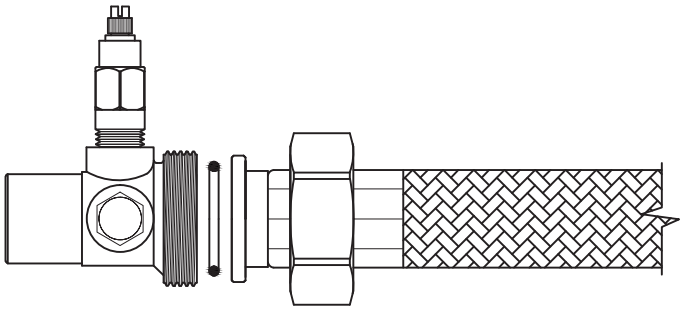
Swivel Union
Available in ½", ¾", & 1"

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.



Fixed Tailpiece
Available in ½", ¾", & 1"

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



PRO Hydronic Specialties, L.L.C.
www.prohydronicspecialties.com
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Garland, TX 75041
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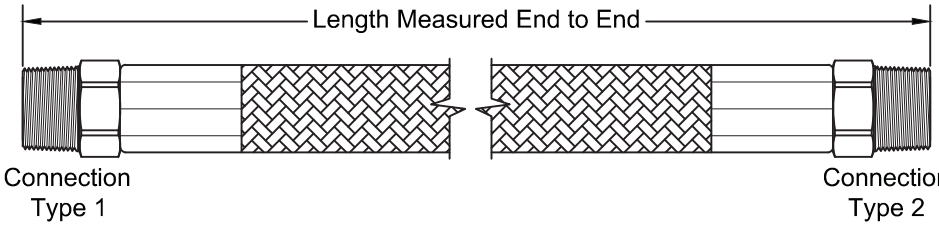
Form Number: SUBHSS2
Revision 0 - 12/2012

PRO Hydronic Specialties

HSS Series Submittal
Stainless Steel Braided Hose



HSS - X - XX - X - X - X - X

MODEL DESIGNATION	HOSE SIZE	HOSE LENGTH	CONNECTION TYPE 1	END DESCRIPTION 1	CONNECTION TYPE 2	END DESCRIPTION 2
HSS - Hose, Stainless Steel	1 - ⅛" 2 - ¾" 3 - 1" 4 - 1¼" 5 - 1½" 6 - 2"	12" 18" 24" 30" 36" *or specify a non-standard length in inches*	M - Male T - Tailpiece * ** Tailpiece end connection is ALWAYS Fixed.*	F - FIXED S - SWIVEL	F - Female M - Male U - Union ** *** Union end connection is ALWAYS Swivel.*	F - FIXED S - SWIVEL

When ordering, at least one hose end connection must be a swivel.

JOB NAME:	REPRESENTATIVE:	
ENGINEER:	REF/PO#:	DATE:
CONTRACTOR:	SUBMITTED BY:	DATE:

PART # (See table above)	QUANTITY

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