MACON® BALANCING

Valve Package

MODEL # 2RS-CS-Ext-Flex

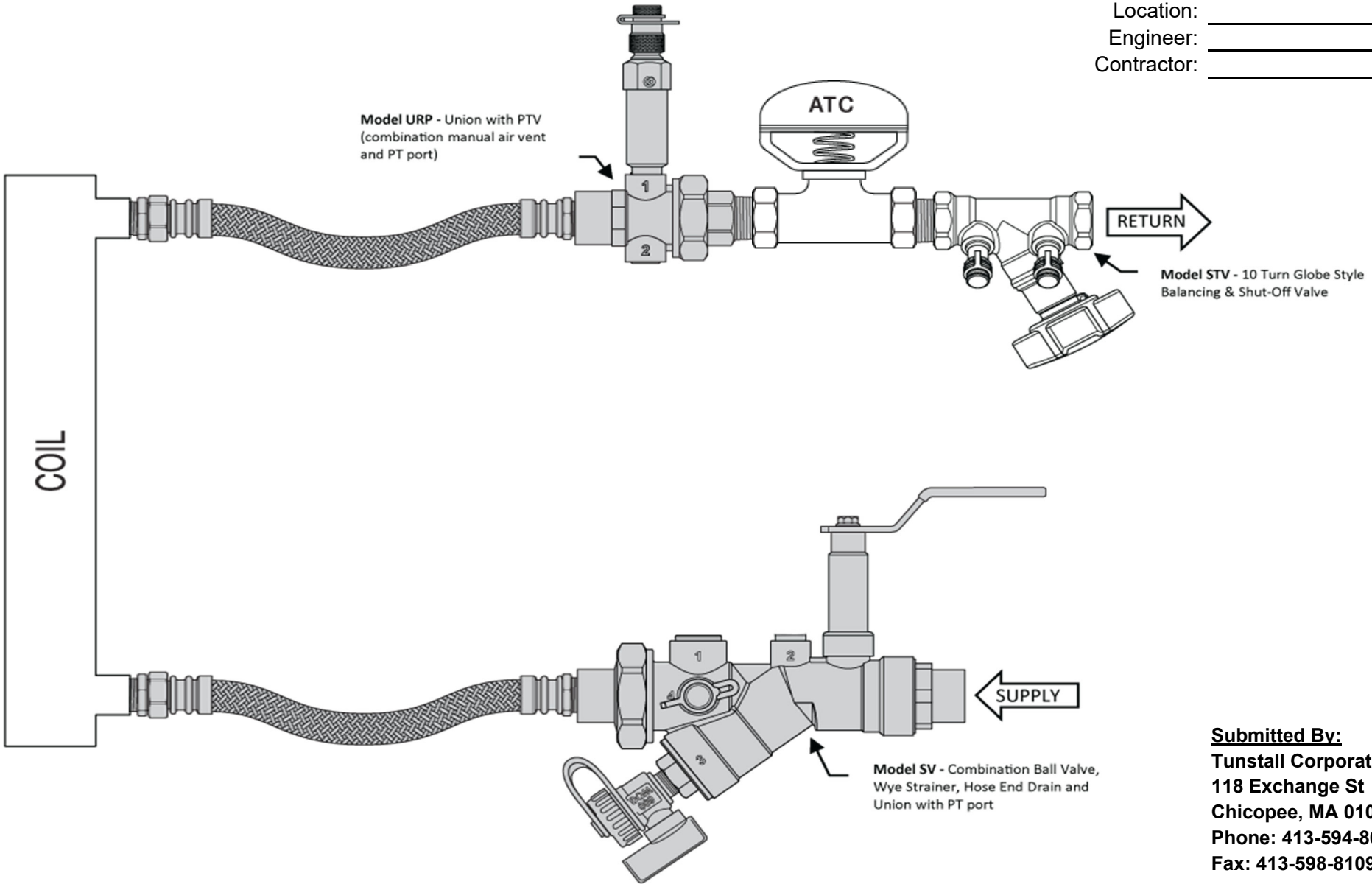
Description: MODEL # 2RS-CS with Extensions and Flexible Hose (TYP)

Job Name: _____

Location: _____

Engineer: _____

Contractor: _____



Submitted By:

Tunstall Corporation
118 Exchange St
Chicopee, MA 01013
Phone: 413-594-8695
Fax: 413-598-8109

MACON® BALANCING

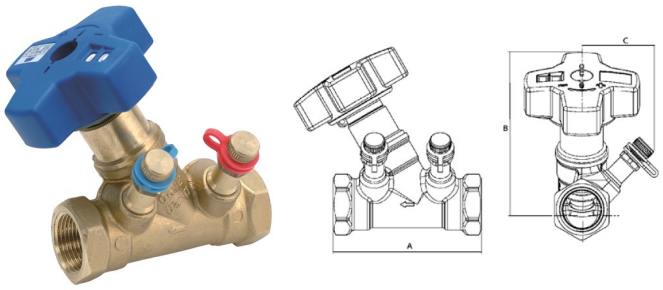
Model STV / STVL

0.50" to 2.00"
Submittal Data

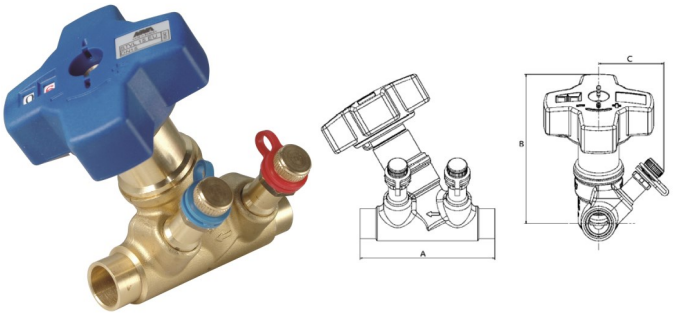
CIRCUIT SETTER

FEATURES

- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive Shut-off
- Offsetting Pressure/temperature ports, Self sealing with optional Drain Kits
- "Y" Pattern Globe style design
- Multi-turn, 360º handwheel with vernier scale and digital readout
- Built in memory stop
- Wide vairety of accessories available



STV Series



STVL Series

SPECIFICATIONS	
Pressure Ratings:	300 psil (20 Bar)
Temperature Ratings:	-4ºF to 248ºF (-20ºC to 120ºC)
Body, Bonnet:	Dezincification Resistant Brass*
End Connections:	STV - Female, NPT STVL - Solder, SWT
Gaskets:	EPDM
Seat Seal	EPDM
Handwheel:	Polyamide Plastic (Blue)

*The use of DZR Brass eliminates the use of dielectric fittings.

NOMINAL DIMENSIONS & WEIGHTS											Valve Selection Guide			
MODEL	SIZE			A Length	B Height	C PIT Offset	WEIGHT		Handwheel Turns		Min. Flow	Nominal Range of Flow	Max. Flow
	in	mm					lbs	kg					
STV-1/2 STVL-1/2	0.50"	15	in	3.39	3.74	1.57	1.2	0.53	10	**GPM**	**0.14**	**0.5 - 3.8**	**12.1**
			mm	86.11	95	40				LPM	0.52	1.89 - 14.36	45.7
STV-3/4 STVL-3/4	0.75"	20	in	3.54	3.74	1.65	1.3	0.58	10	**GPM**	**0.26**	**3.8 - 5.5**	**17.4**
			mm	89.92	95	42				LPM	0.98	14.36 - 20.8	65.7
STV-1 STVL-1	1.00"	25	in	4.02	3.78	1.73	1.7	0.77	10	**GPM**	**0.37**	**5.5 - 9.5**	**30.0**
			mm	102.11	96	44				LPM	1.38	20.8 - 36	113.4
STV-1-1/4 STVL-1-1/4	1.25"	32	in	4.72	3.78	1.85	2.7	1.20	10	**GPM**	**0.60**	**9.5 - 14**	**44.6**
			mm	119.89	96	47				LPM	2.28	36 - 53	169.0
STV-1-1/2 STVL-1-1/2	1.50"	40	in	5.20	4.25	1.93	3.3	1.50	10	**GPM**	**0.91**	**14 - 20**	**66.4**
			mm	132.08	108	49				LPM	3.46	53 - 76	251.0
STV-2 STVL-2	2.00"	50	in	STV/6.06 STVL/6.46	4.37	2.09	5.1	2.30	10	**GPM**	**1.52**	**20 - 33**	**107.2**
			mm	154/164	111	53				LPM	5.76	76 - 125	406.0

FLOW CALCULATIONS
The Minimum Flow is calculated from the minimum recommended pressure drop, 1 ft WG (=3.0 kPa)
The Nominal Flow is from the maximum setting of the valve and the minimum recommended pressure drop, 2 ft WG (=6.0 kPa)
The Maximum Flow is calculated from the maximum setting of the valve and the max pressure drop, 20 ft WG (=60.0 kPa)

Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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CIRCUIT SETTER

Pressure Drop Tables - *Series STV / STVL - 0.50" to 2.00"*

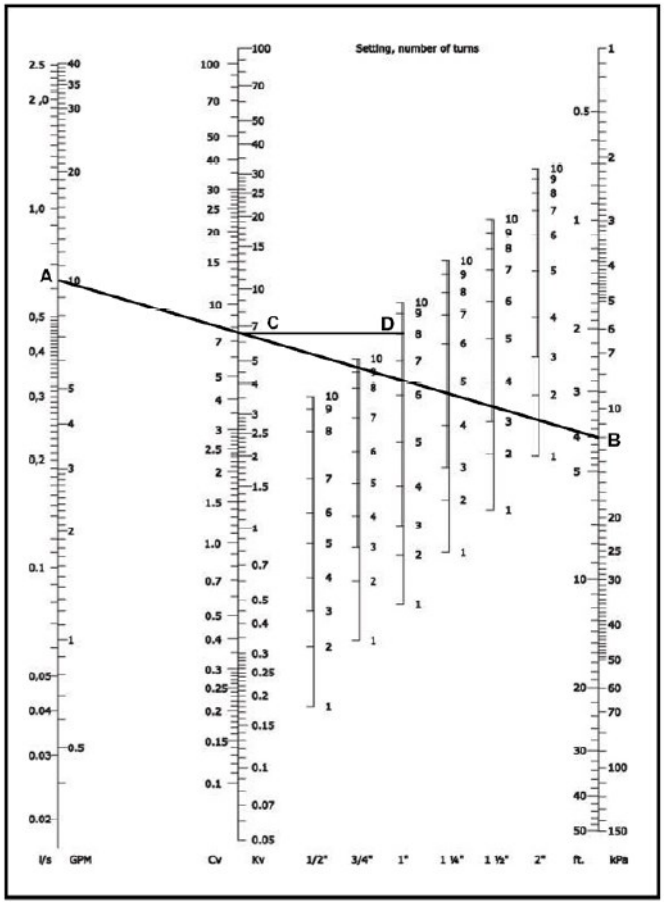
Series STV & STVL 0.50" - 2.00"

This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale.

Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position.

For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.



Cv Values for Valve Series STV / STVL

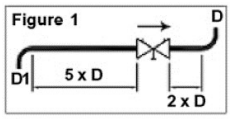
Flow coefficient values (CV's) at various handwheel settings						
Handwheel Setting	1/2" DN 15	3/4" DN 20	1" DN 25	1-1/4" DN 32	1-1/2" DN 40	2" DN 50
1	0.21	0.39	0.56	0.92	1.39	2.32
1.5	0.29	0.56	0.75	1.28	1.97	3.25
2	0.37	0.70	0.89	1.53	2.38	4.18
2.5	0.44	0.82	1.04	1.80	2.78	5.10
3	0.52	0.96	1.19	2.09	3.25	6.03
3.2	0.56	1.02	1.28	2.26	3.48	6.50
3.4	0.59	1.09	1.39	2.44	3.71	6.96
3.6	0.63	1.16	1.51	2.67	4.06	7.54
3.8	0.67	1.23	1.62	2.90	4.41	8.12
4	0.72	1.31	1.74	3.13	4.76	8.82
4.2	0.77	1.39	1.91	3.42	5.10	9.74
4.4	0.81	1.48	2.09	3.71	5.57	10.70
4.6	0.87	1.58	2.26	4.06	6.03	11.70
4.8	0.93	1.68	2.44	4.41	6.61	12.80
5	1.00	1.80	2.67	4.76	7.19	13.80
5.2	1.07	1.91	2.90	5.16	7.77	15.00
5.4	1.14	2.03	3.19	5.57	8.35	16.00
5.6	1.21	2.16	3.48	5.97	8.93	17.20
5.8	1.28	2.30	3.83	6.38	9.63	18.30
6	1.36	2.44	4.18	6.84	10.30	19.40
6.2	1.44	2.60	4.47	7.25	11.00	20.40
6.4	1.52	2.76	4.76	7.66	11.80	21.50
6.6	1.62	2.96	5.10	8.12	12.50	22.50
6.8	1.74	3.16	5.54	8.58	13.20	23.50
7	1.88	3.36	5.80	9.05	13.90	24.60
7.2	2.06	3.60	6.15	9.51	14.60	25.50
7.4	2.26	3.83	6.50	9.98	15.30	26.40
7.6	2.49	4.06	6.84	10.40	15.90	27.40
7.8	2.73	4.27	7.19	10.80	16.50	28.20
8	2.96	4.47	7.54	11.30	17.10	29.00
8.2	3.13	4.63	7.89	11.70	17.60	29.90
8.4	3.29	4.78	8.24	12.20	18.20	30.70
8.6	3.42	4.93	8.58	12.60	18.80	31.60
8.8	3.54	5.08	8.87	13.00	19.40	32.40
9	3.65	5.22	9.16	13.30	19.80	33.20
9.2	3.77	5.36	9.40	13.70	20.30	33.90
9.4	3.87	5.50	9.63	14.20	20.90	34.60
9.6	3.98	5.64	9.86	14.50	21.50	35.30
9.8	4.06	5.78	10.00	14.80	22.00	36.00
10	4.12*	5.92*	10.2*	15.2*	22.6*	36.5*

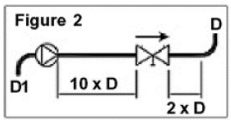
* Valve is fully open

Example: A 1" valve is required to be open 8 turns for a Cv value of 7.5 at a flow rate of 10 gpm and a pressure drop of 4ft.

Installation Recommendations

Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1. (Note: D = pipe diameter).





For Series STVL, cover the valve body with a wet cloth when soldering to prevent premature deterioration of valve components.

When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or downstream to avoid turbulence that will affect the measuring accuracy. See Figure 2.

Turbulence can influence the measurements by up to 20% if this recommendation is not followed.

Flow Measurement & Accuracy

The measuring instrument connects to the test ports of the valve and is pre-programmed with Macon Balancing characteristics. The pressure drop and flow readings can be read off the display. If access to a Macon Balancing instrument is unavailable, other industry models are compatible. In addition, the flow can be determined using the pressure drop diagram that is included in the operating instructions with each Macon Balancing valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to handwheel turns.

Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (ϒ) according to this formula. See Figure 4.

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value. See Figure 5.

Memory Stop

1. Set valves to desired position.
2. Turn the inner stem with a 3 mm Allen wrench in a clockwise direction until it stops.

Figure 3

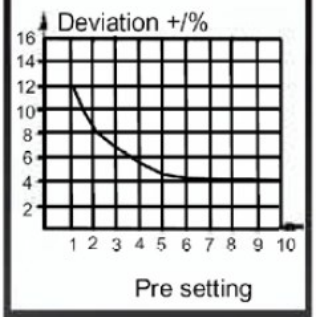


Figure 4

$$\textit{Actual Flow} = \frac{q_{CBI}}{\sqrt{\gamma}}$$

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δ p in Ft. of H2O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

q in GPM, √ p in PSI

Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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MACON® BALANCING

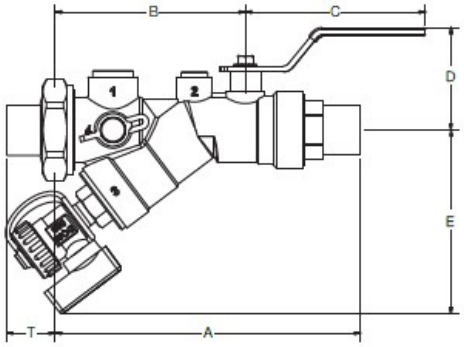
Model SV

0.50" to 2.00"

Submittal Data

Model SV is a combination ball valve, wye strainer and union. The 20 mesh stainless steel strainer is removable for cleaning and inspection. The ball valve has a chrome plated ball with Teflon seats, blowout proof stem with double EPDM O-ring seals. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT and SWT end connections.
Standard features include Pressure/Temperature Port, Hose End Drain Valve and plugged Bypass Port.

SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250ºF (121ºC)
Body Material:	Forged Brass
End Connections:	Fixed End: DZR Brass - SWT & FNPT Brass - Press End Union End: Brass - SWT, FNPT, MNPT & Press End
Seals:	EPDM
Ball:	Chrome Plated Brass, full port, 100% positive shut off. *Optional 316 Stainless Steel.*
Stem:	Brass. *Optional 316 Stainless Steel.*
Handle:	Full size Zinc Plated lever w/Vinyl Grip
Available Options:	"PTV" combination PT & Air Vent, Automatic Air Vent, Handle and Port Extensions



STRAINERS

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		Cv*		A		B	C	D	E	**T SWT	Bypass Port-In	Flow Range	WEIGHT	
	in	mm			FNPT	SWT								lbs	kg
SV1e-050	0.50"	15	5.5	in	4.74	4.88	2.99	2.33	1.73	3.53	0.83	.50	0.35 to 5.0 GPM	1.90	0.86
				mm	120.60	124.05	79.95	59.26	43.94	89.87	21.08				
SV1e-075	0.75"	20		in	4.77	5.22	2.99	2.33	1.73	3.53	0.98			2.67	1.21
				mm	121.36	132.66	79.95	59.26	43.94	89.87	24.89				
SV1e-100	1.00"	25		in	4.91	5.60	2.99	2.33	1.73	3.53	0.98			2.02	0.92
				mm	124.79	142.27	79.95	59.26	43.94	89.87	24.89				
SV2e-050	0.50"	15	7.0	in	5.71	5.95	3.86	3.66	2.08	3.72	0.92	.75	0.35 to 13.0 GPM	2.57	1.17
				mm	145.24	151.33	98.04	93.01	52.83	94.64	23.37				
SV2e-075	0.75"	20		in	5.75	6.20	3.86	3.66	2.08	3.72	1.43			2.61	1.18
				mm	146.10	157.56	98.04	93.01	52.83	94.64	36.32				
SV2e-100	1.00"	25		in	5.96	6.36	3.86	3.66	2.08	3.72	1.17			2.69	1.22
				mm	151.59	161.62	98.04	93.01	52.83	94.64	29.72				
SV2e-125	1.25"	32		in	6.14	6.69	3.86	3.66	2.08	3.72	1.50			2.92	1.32
				mm	156.03	170.00	98.04	93.01	52.83	94.64	38.10				
SV3-100	1.00"	25	25.0	in	8.60	9.44	5.62	5.03	2.26	4.78	1.41	.75	0.35 to 21.0 GPM	4.54	2.06
				mm	218.40	239.80	142.90	127.76	57.40	121.40	35.81				
SV3-125	1.25"	32		in	8.67	9.66	5.62	5.03	2.26	4.78	1.43			4.54	2.06
				mm	220.10	245.30	142.90	127.76	57.40	121.40	36.32				
SV3-150	1.50"	40		in	8.67	9.91	5.62	5.03	2.26	4.78	1.17			4.44	2.01
				mm	220.10	251.70	142.90	127.76	57.40	121.40	29.71				

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NOMINAL DIMENSIONS & WEIGHTS (continued)

MODEL	SIZE		Cv*		A		B	C	D	E	**T SWT	Bypass Port-In	Flow Range	WEIGHT	
	in	mm			FNPT	SWT								lbs	kg
SV4-150	1.50"	40	68.0	in	9.37	9.91	7.44	5.66	2.83	5.31	1.59	1.25	22.0 to 70.0 GPM	8.72	3.96
				mm	238.00	251.71	188.98	143.76	71.88	134.87	40.38				
SV4-200	2.00"	50		in	9.56	10.35	7.44	5.66	2.83	5.31	1.50			9.42	4.27
				mm	232.16	262.89	188.98	143.76	71.88	134.87	38.10				

* Cv values are for the body only without the screen inside.
** Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.
Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	**PT**	Pressure/Temperature test port with brass body, dual durometer EPDM core, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 500 PSI (3450 kPa) and 275°F (135°C)
	**DV**	Drain valve with forged brass body, chrome plated ball, Teflon seats, double EPDM O-ring stem seals, aluminum handle, 3/4" hose connection with cap and plastic retainer strap. Rated to 600 PSI (4140 kPa) WOG and 250°F (121°C)

Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

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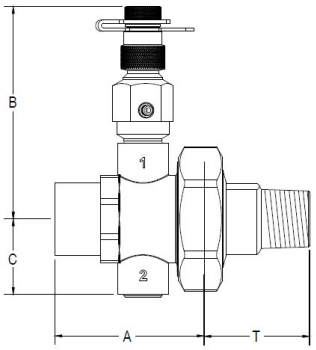
MACON® BALANCING

Model URP

0.375" to 2.00"
Submittal Data

Model URP Union offers numerous End Connections pressure/temperature measurement and vent. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT, SWT and Press End connections.
Standard features include "PTV" Combination PT and Air Vent.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250ºF (121ºC)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT & Press End Union End: SWT, FNPT, MNPT & Press End
Seals:	EPDM
Available Options:	"DV" Drain Valve

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE			A			B	C	*T	WEIGHT	
	in	mm		FNPT	MNPT	SWT			MNPT	lbs	kg
URP-038	0.375"	10	in	N/A	N/A	1.88	2.78	0.84	N/A	0.76	035
			mm	N/A	N/A	47.68	70.61	21.34	N/A		
URP-050	0.50"	15	in	1.90	2.25	1.88	2.78	0.84	1.50	0.86	0.39
			mm	48.26	57.23	47.75	70.25	21.34	38.10		
URP-075	0.75" R	20	in	1.98	2.19	2.12	2.78	0.84	1.55	0.79	0.36
			mm	50.29	55.65	53.85	70.61	21.34	39.37		
URP-100	1.00"	25	in	2.15	N/A	2.28	3.02	1.08	1.75	1.16	0.53
			mm	54.61	N/A	57.91	76.65	27.43	44.72		
URP-125	1.25"	32	in	2.39	N/A	2.56	3.39	1.46	1.80	2.20	1.00
			mm	60.71	N/A	65.02	86.18	37.08	45.72		
URP-150	1.50"	40	in	2.39	N/A	2.69	3.39	1.46	1.80	2.42	1.10
			mm	60.71	N/A	68.32	86.18	37.08	45.72		
URP-200	2.00"	50	in	2.49	N/A	3.03	3.70	1.76	1.98	3.42	1.55
			mm	63.25	N/A	76.96	94.08	44.70	50.17		

* Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.
Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	**PTV**	Combination manual air vent and pressure/temperature test port with brass body, dual durometer EPDM core, blowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 250 PSI (1725 kPa) and 250°F (121°C)

Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

UNIONS

Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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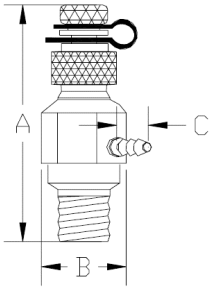
PTV - PRESSURE / TEMPERATURE VENT

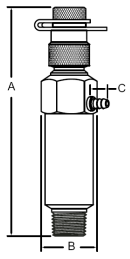


PATENT #6899317

Combination manual air vent and pressure/temperature test port with brass body, dual durometer EPDM core, blowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem.
Rated to 250 PSI (1725 kPa) and 250°F (120°C).

MODEL	NPT CONN		A	B	C	WRENCH SIZE	WEIGHT	
							lbs	kg
PTV-025	1/4"	in	1.50	0.84	0.32	3/4"	0.154	0.07
		mm	40	21	9			
PTV-050	1/2"	in	1.50	0.98	0.32	3/4"	0.225	0.10
		mm	0.98	25	9			

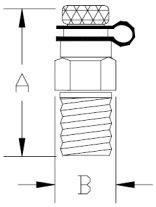
EPTV - EXTENDED PRESSURE / TEMPERATURE VENT



Extended combination manual air vent and pressure/temperature test port with brass body, dual durometer EPDM core, blowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem.
Rated to 250 PSI (1725 kPa) and 250°F (120°C).

MODEL	NPT CONN		A	B	C	WRENCH SIZE	WEIGHT	
							lbs	kg
EPTV-025	1/4"	in	3.60	0.87	0.31	3/4"	0.28	0.12
		mm	91	21	8			

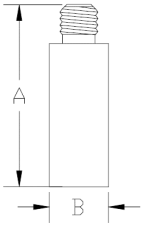
PT - PRESSURE / TEMPERATURE PORT



Pressure/Temperature test port with brass body, dual durometer EPDM core, brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem.
Rated to 500 PSI (3450 kPa) and 275°F (135°C).

MODEL	NPT CONN		A	B	WRENCH SIZE	WEIGHT	
						lbs	kg
PT-025	1/4"	in	1.36	0.65	9/16"	0.06	0.03
		mm	34	16			
PT-050	1/2"	in	1.36	1.01	7/8"	0.18	0.08
		mm	34	25			

PTE - PTV / PT EXTENDER



Single and Dual Extender for PTV and PT models, used on insulated piping systems or where extended length is desired. The PTE is installed above the PTV or PT core with an O-ring seal. The PTE can be installed in the field without removing the PTV or PT from the piping system. Brass body with EPDM O-ring seal.
Rated to 500 PSI (3450 kPa) and 250 ° F (120 ° C).

MODEL		A	B	WEIGHT	
				lbs	kg
PTE-025 One	in	1.59	0.54	0.90	0.04
	mm	41	14		
PTE-025 Two	in	1.59	0.54	0.90	0.04
	mm	41	14		

ACCESSORIES

EH - EXTENDED HANDLE

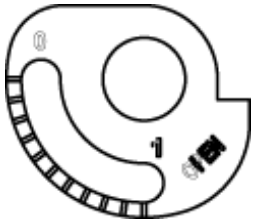
Handle Extension, forged brass stem & collar, for extending existing handle 2".

MODEL	FITS
EH-1	1/2", 3/4", & 1"R, AB, BB, MB, SB, SV, 1" SV
EH-2	1" & 1-1/4" AB, BB, MB, SB, 1-1/4" & 1-1/2" SV, AB
EH-3	1-1/2" & 2" BB,MB,SB, 2" SV, AB

SH - SHORT LEVER HANDLE

Short lever valve handle, zinc plated steel.

MS - MEMORY STOP

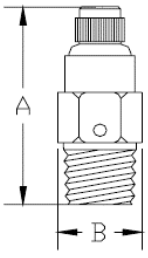


Memory stop, Zinc plated steel with position indicator and position lock screw.
For use with valve handles.

SSBS - STAINLESS STEEL BALL & STEM

316 Stainless Steel Ball & Stem.
Available in 1/2" - 2"

MAV - MANUAL AIR VENT



Manual air vent with brass body, knurled operator with screwdriver slot, blowout-proof stem, and side discharge vent.
Rated to 400 PSI (2760 kPa) and 250°F (120°C).

MODEL	NPT CONN		A	B	WRENCH SIZE	WEIGHT	
						lbs	kg
MAV-025	1/4"	in	1.75	0.625	9/16"	0.80	0.36
		mm	44	16			

ACCESSORIES

Tunstall®
Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
Phone (413) 594-8695 · Fax (413) 598-8109

MACON® BALANCING

Flexible Hose Connectors

Submittal Data

These hoses have been specially designed for operating conditions in heating and air conditioning, the elastomer is not sensitive to Glycol or water treatment products.

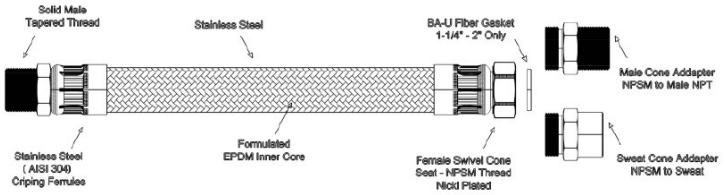
Each hose is made up of several quality components and the special crimping on the ferrule under strict quality control gives this hose security against any leakage.

The special EPDM core meets a fully defined specification: Shore hardness, resistance to ageing, mechanical resistance (elasticity, tensile fracture, stretching), ability to accept chemical agents in contact with the elastomer and non-toxic. ASTM Fire rated hoses meet 25/50 flammability and smoke development classification requirements of codes and specifications when tested by ASTM E 84 method.

HOSES ARE DESIGNED FOR HYDRONIC HEATING/COOLING, NOT FOR GAS.

SPECIFICATIONS

Temperature Ratings:	All Sizes: 5ºF to 230ºF Less than 41ºF with use of Glycol additive
External Braiding:	304 Stainless Steel
Crimping Ferrules:	304 Stainless Steel
Core:	EPDM
End Connections:	Brass - CW614N ▪ 1/2" - 1" MNPT x Male Cone x Hose Adaptor (Gasket Less Connection) ▪ 1-1/4" - 2" MNPT x BA-U Gasket & Hose Adaptor
Adaptor Connections:	Male NPT, Copper SWT
Union Nut:	Nickel Plated Brass - CW614N
Tailpiece:	Brass - CW614N
Gasket (1-1/4" & 2"):	BA-U Fiber



Specs for Application and Installation

• ON INSTALLATION : Avoid absolutely any tension due to stretching, twisting or torsion during the course of tightening the connectors.

A. Install and tighten the fixed male connector (if applicable)

B. Install and tighten the union adaptor (if applicable)

C. Install and tighten the swivel nut

• Use two spanners in order to screw in the union: One to hold the hexagon of the adaptor. The other to tighten the nut at the same time.

IMPORTANT - Do not re-screw the fixed connector or adaptor after tightening of the swivel nut; this will cause torsion on the flexible hose, with a risk of rapid deterioration. On removal, take the same precautions. If the flexible incorporates two fixed connectors, at least one must be installed on a counter-part fitted with a screw connector.

***BEFORE INSTALLING REFER TO THE INSTALLATION & OPERATION INSTRUCTIONS FOR COMPLETE DETAILS. WARNING: FAILURE TO FOLLOW THE INSTALLATION & OPERATION INSTRUCTIONS COULD RESULT IN IMPROPER INSTALLATION.**

NOMINAL DIMENSIONS

SIZE	MODEL #					
	HCA	HCB	HCC	HCD	HCE	HCF
12" LENGTH	1/2"	3/4"	1"	N/A	N/A	N/A
18" LENGTH	1/2"	3/4"	1"	1-1/4"	1-1/2"	N/A
24" LENGTH	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
36" LENGTH	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"

Cv *

SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
12" LENGTH	3.3	11.0	20.9	N/A	N/A	N/A
18" LENGTH	3.2	10.7	20.3	37.9	64.4	N/A
24" LENGTH	3.1	9.9	19.5	36.9	61.0	110.7
36" LENGTH	3.0	9.3	18.2	34.7	55.0	100.8

* Note the Cv factor is the flow rate, in GPM, through the hose at 1 PSID.

Max. Operating & Burst Pressure Rating

Size	Operating (PSI)	Burst (PSI)
1/2"	375	1500
3/4"	300	1200
1"	225	900
1-1/4"	200	800
1-1/2"	175	600
2"	150	500

Typical Specifications:

Furnish and install where indicated on plans **Flexible Connectors** as provided by **Macon Balancing**. Hoses shall be temperature rated: 5ºF to 230ºF. Pressure rated from 375 PSI to 150 PSI based on hose diameter. Constructed specifically for operating conditions in heating and air conditioning with solid brass connectors, stainless steel ferrules, AISI 304 stainless steel braid, and formulated EPDM inner core design to not be sensitive to Glycol or water treatment products. Hoses shall meet 25/50 flammability and smoke development classification requirements of codes and specifications when tested by ASTM E 84 method.

JOB: _____ ENGINEER: _____

REP: _____ CONTRACTOR: _____

ACCESSORIES

Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

www.maconbalancing.com

Tunstall®

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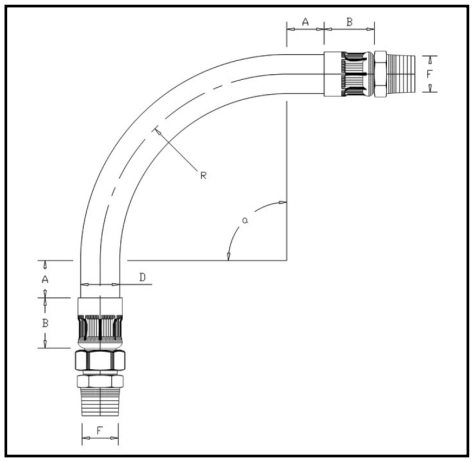

NOMINAL DIMENSIONS						
F	**LENGTH**	**R min**	**A min**	**B**	**D**	**CX max**
	in	**mm**	**mm**	**mm**	**mm**	
1/2”	12”	60	40	23	17	89º
	18”	60	40	23	17	180º
	24”	60	40	23	17	180º
	36”	60	40	23	17	180º
3/4”	12”	80	55	35	26	32º
	18”	80	55	35	26	126º
	24”	80	55	35	26	180º
	36”	80	55	35	26	180º
1”	12”	110	65	35	35	5º
	18”	110	65	35	35	75º
	24”	110	65	35	35	142º
	36”	110	65	35	35	180º
1-1/4”	18”	120	100	46	42	30º
	24”	120	100	46	42	92º
	36”	120	100	46	42	180º
1-1/2”	18”	200	140	62	53	5º
	24”	200	140	62	53	27º
	36”	200	140	62	53	104º
2”	24”	280	230	57	63	5º
	36”	280	203	57	63	42º

IMPORTANT: Do not re-tighten the fixed end or adaptor after tightening the swivel nut. This will cause tension or torsion and can result in rapid deterioration.

INSPECTION: We recommend a good maintenance practice and periodic inspections, typically when servicing other components at the unit or at the installation site. Check all hoses for small water leaks, residue, or discoloration on the exterior braid and fittings. If a leak is detected, stop service to the unit and replace hose immediately. Do not attempt to repair the hose.

Caution: Introduction of chemicals into the system or unit may cause damage of the inner core of the hose. Consult a water treatment specialist for chemical compatibility before using any chemical additives.

Warning: Hoses are designed for Hydronic heating and cooling service only; not for gas.