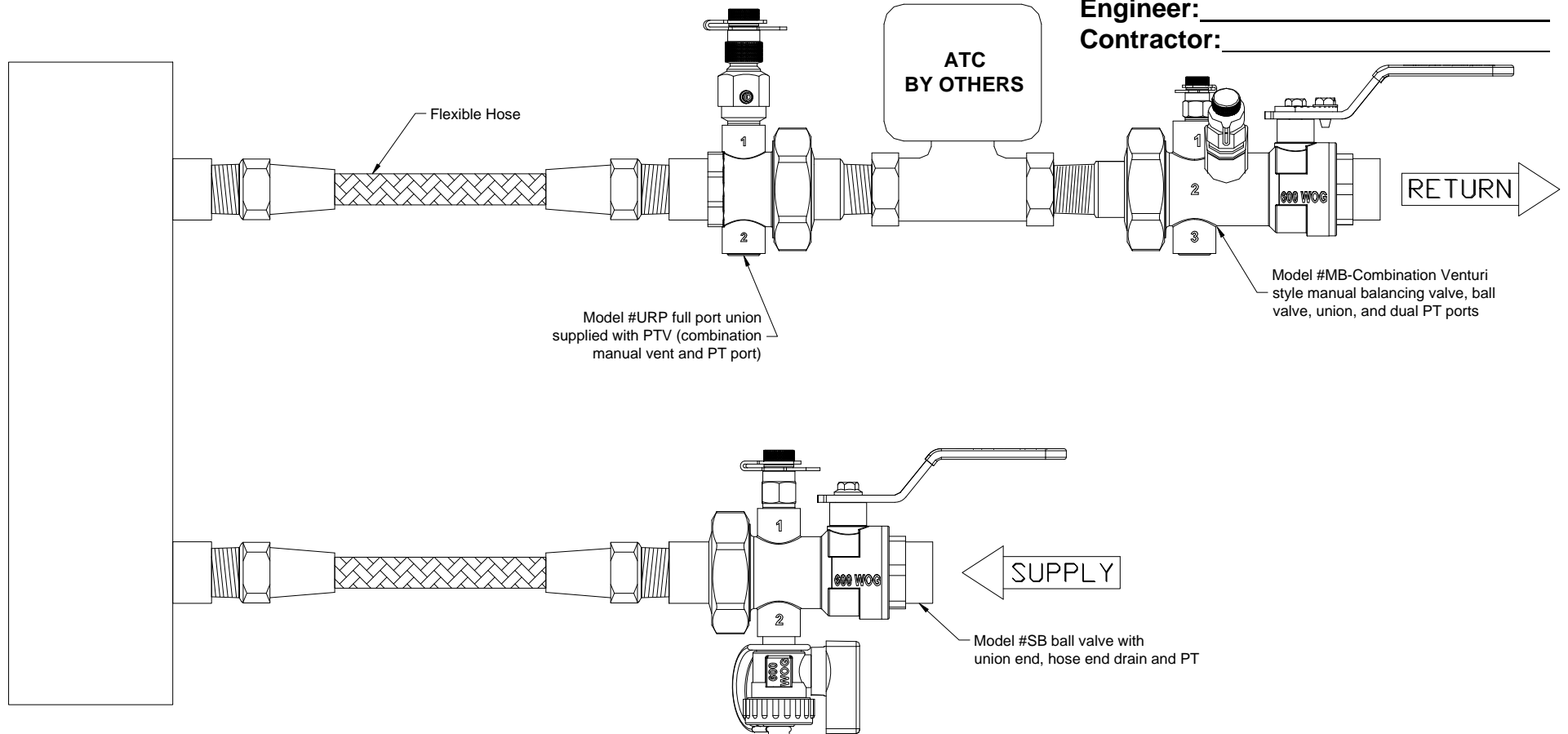


Valve Package (Model # 2RD-MV-FLEX)

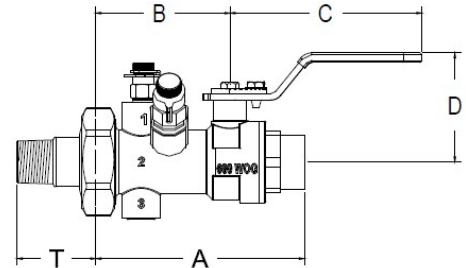
Typical For:

Job Name: _____
 Location: _____
 Engineer: _____
 Contractor: _____



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

Model MB is a venturi style manual balancing valve with 100% positive shut-off full port plated ball. Permanently installed venturi section, Teflon seats, double o-ring shaft seals, Pressure/Temperature readout ports, adjustable memory stop with position indicator and union end with o-ring seal. Available with multiple combinations of end connection types and sizes.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	± 3% of flow rate
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT & Press End Union End: SWT, FNPT, MNPT & Press End
Flow Element:	Brass Venturi, Permanently installed
Seals:	EPDM
Seats:	Teflon
Ball:	Chrome Plated Brass. <i>Optional 316 Stainless Steel.</i>
Stem:	Brass. <i>Optional 316 Stainless Steel.</i>
Handle:	Full size Zinc Plated lever w/Vinyl Grip
Memory Stop:	Zinc Plated Steel
Available Options:	"PTV" combination PT & Air Vent, DV hose end Drain Valve & Extensions.

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		Flow Range GPM (10"-100")		A		B	C	D	*T SWT	WEIGHT	
	in	mm			FNPT	SWT					lbs	kg
MB1A-050-L MB1B-050-H	0.50"	15	(L) 0.4 - 1.3 (H) 1.5 - 5.0	in	4.14	4.50	2.45	2.33	1.64	1.50	1.37	0.62
mm			105.14	114.30	62.23	59.18						
MB1A-075-L MB1B-075-H	0.75"R	20	(L) 0.4 - 1.3 (H) 1.5 - 5.0	in	4.26	4.79	2.45	2.33	1.64	1.55	1.45	0.66
mm			108.20	121.66	62.23	59.18						
MB1A-100-L MB1A-100-H	1.00"R	25	(L) 0.4 - 1.3 (H) 1.5 - 5.0	in	4.59	5.04	2.45	2.33	1.64	1.75	1.52	0.69
mm			116.58	128.01	62.23	59.18						
MB2A-075-L MB2B-075-H	0.75"	20	(L) 1.6 - 5.0 (H) 4.0 - 13.0	in	4.36	4.93	2.46	3.66	2.08	1.56	1.97	0.89
mm			110.74	125.22	62.69	92.99						
MB2A-100-L MB2B-100-H	1.00"	25	(L) 1.6 - 5.0 (H) 4.0 - 13.0	in	4.57	5.22	2.46	3.66	2.08	1.75	2.06	0.93
mm			116.07	132.58	62.69	92.99						
MB2A-125-L MB2B-125-H	1.25"R	32	(L) 1.6 - 5.0 (H) 4.0 - 13.0	in	4.75	5.30	2.46	3.66	2.08	1.80	2.25	1.02
mm			120.64	134.61	62.69	92.99						
MB3A-125	1.25"	32	6.7 - 21.0	in	6.51	7.49	3.48	5.03	2.26	1.80	4.16	1.89
mm				165.35	190.24	88.39						
MB3A-150	1.50"	40	6.7 - 21.0	in	6.51	7.76	3.48	5.03	2.26	1.80	4.23	1.92
mm				165.35	190.24	88.39						
MB4A-200	2"	50	15.0 - 50.0	in	6.57	7.36	4.45	5.66	2.83	1.98	7.10	3.22
mm				166.90	187.00	113.00						

* 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, 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)
	MS	Memory stop with position indicator, zinc coated steel.

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

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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Section: Components Bulletin-MB-MB-1216.02

MANUAL

Differential Pressure Table - Model MB - 0.50" to 2.00"

Model MB Venturi Type Balancing Valve 0.50" - 2.00"

Differential Pressure: Inches W.C.

Flow GPM	MB1A-	MB1B-	MB2A-	MB2B-	MB3A-	Flow GPM	MB3A-	MB4A-
	050-L 075R-L	050-H 075R-H	075-L 100-L 125-L	075-H 100-H 125-H	125 150		125 150	200
0.10	1					18.00	71	14
0.20	2					19.00	79	15
0.30	5					20.00	87	17
0.42	10	0.8				21.00	96	19
0.50	14	1.1	1			22.00	106	21
0.75	31	2.3	2			23.00	116	23
1.00	55	4.4	4			24.00	126	25
1.25	86	6.8	6			25.00	137	27
1.35	101	7.9	7	1		26.00	148	29
1.50	124	10	9	1.4		27.00	159	31
2.00	221	17	16	2.5		28.00	171	34
2.25		22	21	3	1.1	29.00	184	36
2.50		27	25	4	1.4	30.00	197	39
3.00		39	36	6	2.0	31.00	210	41
3.50		53	50	8	2.7	32.00	224	44
4.00		70	65	10	3.5	33.00	238	47
4.50		88	82	13	4.4	34.00	253	50
5.00		109	101	15	5.5	35.00	268	53
5.50		132	123	19	6.6	36.00		56
6.00		157	146	22	7.9	37.00		59
6.50		184	171	26	9.2	39.00		65
7.25		229	213	33	11.5	40.00		69
7.50		245	228	35	12.3	41.00		72
8.00				40	14.0	42.00		76
8.50				45	15.8	43.00		79
9.00				50	17.7	44.00		83
9.50				56	19.7	45.00		87
10.00				62	21.9	48.50		101
10.50				68	24.1	55.00		130
11.00				75	26.4	60.00		154
11.50				82	28.9	65.00		181
12.00				89	31.5	70.00		210
12.50				97	34.2	75.00		241
13.00				105	36.9			
14.00				121	42.8			
15.00				139	49.2			
16.00				159	56.0			
17.00				179	63.2			
FF	0.1346	0.479	0.4967	1.2704	2.139	FF	2.139	4.8274

Flow Formulas

GPM = FF x (√DP)
 DP = (GPM/FF)²
 PPL = DP x 0.12

Notes:

- 1) Accuracy ± 3% of flow rate.
- 2) Repeatability ± 0.25% of rate.
- 3) Values in **BOLD** type represents traditional 10" to 100" sizing range.
- 4) All valves will function above and below ranges shown. Pressure drop and readability should be taken into account.

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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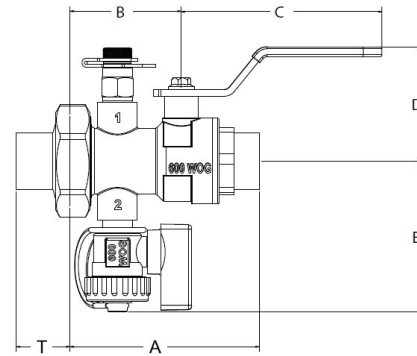
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Section: *Components*

Bulletin-MB-MB-1216.02

MANUAL

Model SB Union End Ball Valve offers positive shut-off, pressure/temperature measurement and drain. 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, SWT and Press End connections. Standard features include Pressure/Temperature Port and Hose End Drain Valve.





SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT & Press End Union End: SWT, FNPT, MNPT & Press End
Seals:	EPDM
Ball:	Chrome Plated Brass, full port, 100% positive shut-off. <i>Optional 316 Stainless Steel.</i>
Stem:	Brass. <i>Optional 316 Stainless Steel.</i>
Handle:	Full size Zinc Plated lever with Vinyl Grip
Available Options:	"PTV" combination PT & Air Vent

NOMINAL DIMENSIONS & WEIGHTS												
MODEL	SIZE		A		B	C	D	E	*T MPT	WEIGHT		
	in	mm	FNPT	SWT						lbs	kg	
SB1E-050	0.50"	15	in	3.72	4.08	2.03	3.66	1.61	2.53	1.50	1.51	0.68
			mm	94.5	103.6	51.6	93.0	40.9	64.3	38.1		
SB1E-075	0.75" R	20	in	3.84	4.37	2.03	3.66	1.61	2.53	1.50	1.55	0.70
			mm	97.5	111.0	51.6	93.0	40.9	64.3	38.1		
SB2E-075	0.75"	20	in	3.92	4.49	2.03	3.66	2.08	2.74	1.56	1.58	0.72
			mm	99.6	114.0	51.6	93.0	52.8	69.6	39.7		
SBBE-100	1.00"	25	in	4.13	4.53	2.03	3.66	2.08	2.74	1.75	2.06	0.93
			mm	105.0	115.1	51.6	93.0	52.8	69.6	44.5		
SB3-125	1.25"	32	in	5.42	6.41	2.37	5.03	2.26	3.12	1.80	4.33	1.96
			mm	137.7	162.8	60.3	127.8	57.4	79.3	45.7		
SB3-150	1.50"	40	in	5.42	6.67	2.52	5.65	2.26	3.12	1.80	4.48	2.03
			mm	137.7	169.3	64.0	143.6	57.4	79.3	45.7		
SB4-200	2.00"	50	in	5.03	5.82	2.90	5.66	2.83	3.51	1.98	6.04	2.74
			mm	127.8	148.8	73.7	143.8	71.9	89.2	50.2		

SHUT OFF VALVES

* 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)

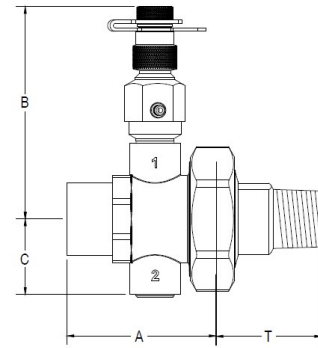
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

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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Section: Components
Bulletin-MB-SB-0915.02

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:	250°F (121°C)
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 MNPT	WEIGHT		
	in	mm	FNPT	MNPT	SWT				lbs	kg	
URP-038	0.375"	10	in	N/A	N/A	1.88	2.78	0.84	N/A	0.76	0.35
			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)
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Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

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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 Section: Components Bulletin-MB-URP-0915.02

UNIONS

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.

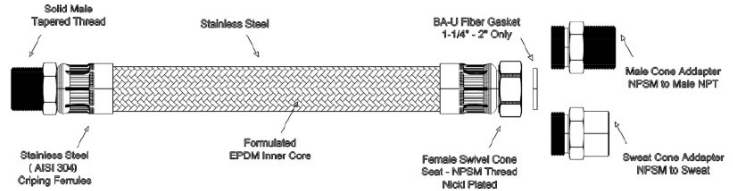
The special EPDM core meets a fully defined specification: Shore hardness, resistance to ageing, mechanical resistance (elasticity, tensile fracture, stretching), ability to accept chemical agents in contact with the elastomer and non-toxic. ASTM Fire rated hoses meet 25/50 flammability and smoke development 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: 5°F to 230°F Less than 41°F 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: 5°F to 230°F. 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: _____

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

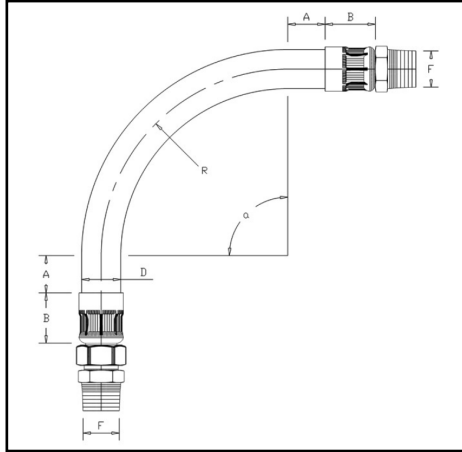
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Section: *Components* Bulletin-MB-FH-0915_2

ACCESSORIES

Accessories - Model FH



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

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.

ACCESSORIES

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