Baumann™ 24003 3-Way Bronze or Stainless Steel Control Valve

The Baumann 24003 3-way control valve is ideally suited for control of flow and temperature where mixing or diverting service is required. This 3-way valve uses a rugged cast bronze or CF8M stainless steel body with S31600 austenitic stainless steel trim for extended service life.

Features

- Compact and light weight design reduces installed piping costs.
- Optional ENVIRO-SEAL[™] packing system to meet critical emission control requirements; suitable for use in light duty chemical service (not for use in corrosive service). This option is available in the stainless steel version only.
- High quality S31600 austenitic stainless steel trim materials.
- Dual plug and stem guiding provides increased stability during plug travel.
- Multiple trim capacity reductions available to meet changing process requirements.
- Fisher™ FIELDVUE™ digital valve controllers available for remote calibration and diagnostics in facilities utilizing the PlantWeb™ architecture.



Stainless Steel 3-Way Valve with Baumann 32 Actuator



Bronze 3-Way Valve with Baumann 54 Actuator and FIELDVUE DVC2000 Digital Valve Controller





Table 1. Flow Direction⁽¹⁾

Service	Inlet	Outlet			
Diverting	С	U and L			
Mixing	С				
1. C = Common port, U = Upper port, L = Lower port					

Figure 1. Baumann 24000F Valve Body with Standard Bonnet and NPS 1 Integral Seat

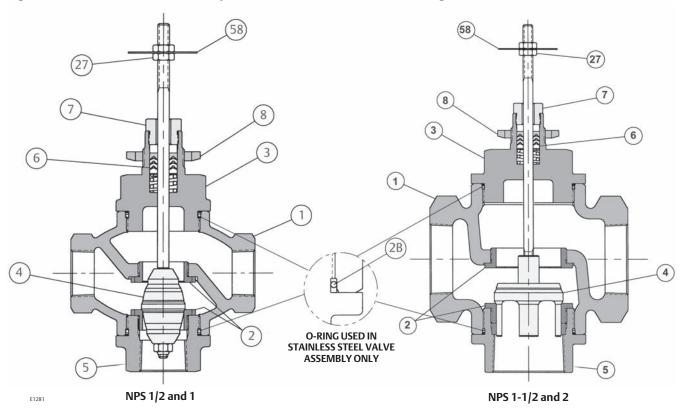


Table 2. Materials of Construction

KEY	DECEMBRIO		MATE	MATERIAL				
NO.	NO. DESCRIPTION		Bronze	Stainless Steel				
1	Valve Body		Bronze ASTM B62	ASTM A351 CF8M				
2	Seat Rings		ASTM A276 S31600 Condition A	ASTM A276 S31600 Condition A				
2B	O-Ring		N/A	TFE/P (tetrafluoroethylene/propylene)				
3	Bonnet		Bronze ASTM B62	ASTM A351 CF8M				
4	Plug & Stem Assembly		ASTM A276 S31600 Condition A	ASTM A276 S31600 Condition A				
5	Bottom Port		Bronze ASTM B62	ASTM A351 CF8M				
		Standard	PTFE (Polytetrafluoroethyler	ne) / PTFE, 25% carbon filled				
6	Packing		Molded Graphite Ribbon (Flexible Graphite)					
		Optional	ENVIRO-SEAL (Stai	inless Steel ONLY)				
7	Packing Follow	er er	ASTM A276 S31600 Cor	ndition A Stainless Steel				
8	Drive Nut (Yoke)		ASTM A194 S30400 Gr. 8					
27	Locknuts		Stainless Steel (18-8 SST)					
58	Travel Indicate	or	ASTM A240 S30400					

Figure 2. Standard Spring-Loaded PTFE V-Ring Packing Kit

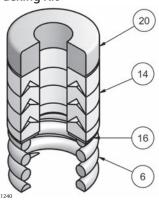


Table 3. Standard Spring-Loaded PTFE V-Ring Packing Kit

Key Number	Description	Material
6	Spring	ASTM A313 S30200
14	Packing Set	PTFE (Polytetrafluoroethylene) / PTFE, 25% carbon filled
16	Washer	ASTM A240 S31600
20	Spacer	J-2000 (filled-Polytetrafluoroethylene)

Figure 3. Molded Graphite (Flexible Graphite) Packing Kit (Optional)

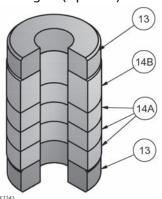


Table 4. Molded Graphite (Flexible Graphite) Packing Kit (Optional)

Key Number	Description	Material
13	Bushings	Carbon-Graphite
14A	Packing Rings	Graphite
14B	Packing Ring	Graphite

Figure 4. ENVIRO-SEAL Packing Kit (Optional for Stainless Steel Only)

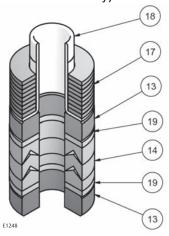


Table 5. ENVIRO-SEAL Packing Kit (Optional for Stainless Steel Only)

Key Number	Description	Material		
13	Bushing	Carbon-Graphite		
14	Packing Set	PTFE (Polytetrafluoroethylene) / PTFE, 25% carbon filled		
17	Belleville Spring	N06600 Nickel Alloy (ASTM B637 N07718, 40 HRC max)		
18	Bushing	PEEK (polyetheretherketone)		
19	Washer	Modified PTFE		

Special ENVIRO-SEAL Packing Note

The ENVIRO-SEAL PTFE packing system is suitable for 100 ppm environmental applications on services up to 51.7 barg (750 psig) and process temperatures ranging from -46 to 232°C (-50 to 450°F).

For non-environmental applications, this packing system offers excellent performance at the same temperature range up to the maximum valve working pressure.

Temperature limits apply to packing arrangements only. Complete valve assembly temperature limits may differ, refer to appropriate pressure/temperature ratings.

(<u>Reference Fisher Packing Selection Guidelines for Sliding-Stem Valves, Bulletin 59.1:062, D101986X012</u>).

52.1:243WY March 2016

Table 6. Technical Specifications

NOMINAL PIPE SIZE	NPS 1/2, 1, 1-1/2, and 2				
END CONNECTIONS	Screwed NPT				
SEAT PLUG SEALING	Metal-to-Metal				
CHARACTERISTIC	Linear				
SEAT LEAKAGE	Class III				
VALVE BODY MATERIAL	Bronze Stainless Steel				
PRESSURE RATING	400 psi @ 150°F / 250 psi @ 400°F 720 psi @ 150°F / 515 psi @ 400°F				
TEMPERATURE LIMITS	-20 to 400°F	-20 to 450°F			

Figure 5. Valve Body and Temperature Limits

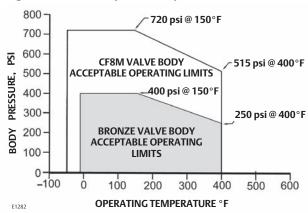


Table 7. Max Cv Values at 100% Plug Opening $^{(1)}$ (Kv = 0.86 x Cv)

VALVE SIZE	ORIFICE DIAMETER	PLUG TRAVEL	RATED VALUES		
NPS	inches	inches	C _V		
1/2	0.626	0.56	1, 2		
1/2	0.876	0.56	4		
1	0.876	0.56	4		
'	1.126	0.56	10		
1-1/2	1.676	0.75	20		
2	2.126	0.75	40		
1. See Fisher Catalog 12 for a full range of flow and sizing information.					

Figure 6. Mixing Service Flow Characteristics

FLOW INTO PORTS U AND L

PERCENTAGE OF MAXIMUM RATED CV

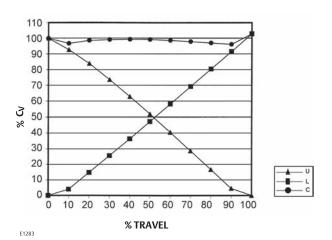


Figure 7. Diverting Service Flow Characteristics
FLOW INTO PORT C
PERCENTAGE OF MAXIMUM RATED CV

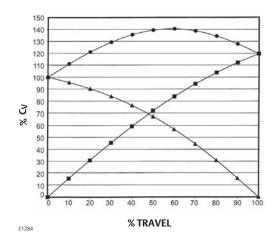
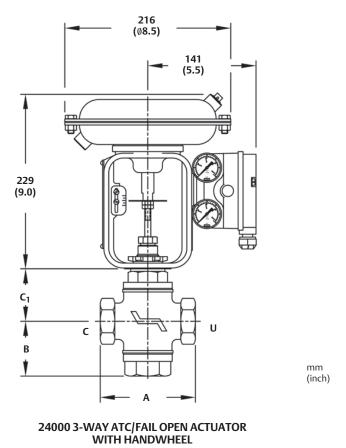


Table 8. Valve Body Dimensions and Weights: NPT Valve Bodies Only

VALVE SIZE	VALVE BODY MATERIAL						TDAVEL	WEIGHT	
VALVE SIZE		BRONZE, NPT		STAINLESS STEEL, NPT (A)			TRAVEL	WEIGHT	
NPS	A	В	C1	A B C1			Inches	lbs	
1/2	4.88	2.75	2.75	5.0	2.75	2.75	0.56	8	
1	4.88	2.75	2.75	5.0	2.75	2.75	0.56	8	
1-1/2	5.75	3.81	3.31	6.1	3.38	3.31	0.75	15	
2	6.50	4.0	3.6	6.50	3.75	3.6	0.75	20	

Figure 8. Dimensional Drawing



Note: Actuator removal requires 115 mm (4.5 inches) vertical clearance.

Table 9. Application Port⁽¹⁾

E1285

Service	Inlet	Outlet
Diverting	С	U and L
Mixing	U and L	С
1. C = Common port, U = Upper port, L = Lower port		

Figure 9. Mixing and Diverting Applications

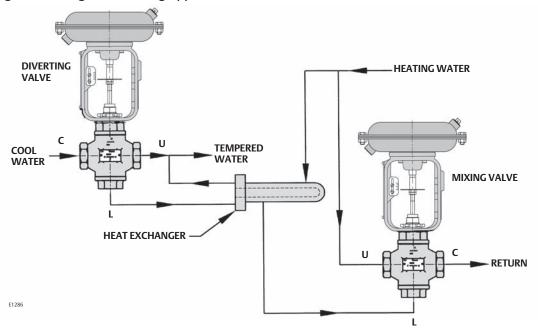


Table 10. Model Numbering System

24					3		
Valve Body Series		Service		Port "L" Fails	3-Way Valve Body Material		Material
24	D	Diverting	1	Closed	3		Bronze
	М	Mixing	2	Open		S	Stainless Steel

Neither Emerson, Emerson Process Management, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Baumann, ENVIRO-SEAL, Fisher, FIELDVUE, and PlantWeb are marks owned by one of the companies in the Emerson Process Management business unit of Emerson Electric Co. Emerson Process Management, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Process Management Marshalltown, Iowa 50158 USA Sorocaba, 18087 Brazil Cernay, 68700 France Dubai, United Arab Emirates Singapore 128461 Singapore

www.Fisher.com

