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.

W9764

Stainless Steel 3-Way Valve with Baumann 32 Actuator

W9765

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

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.

Table 1. Flow Direction(1)

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

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

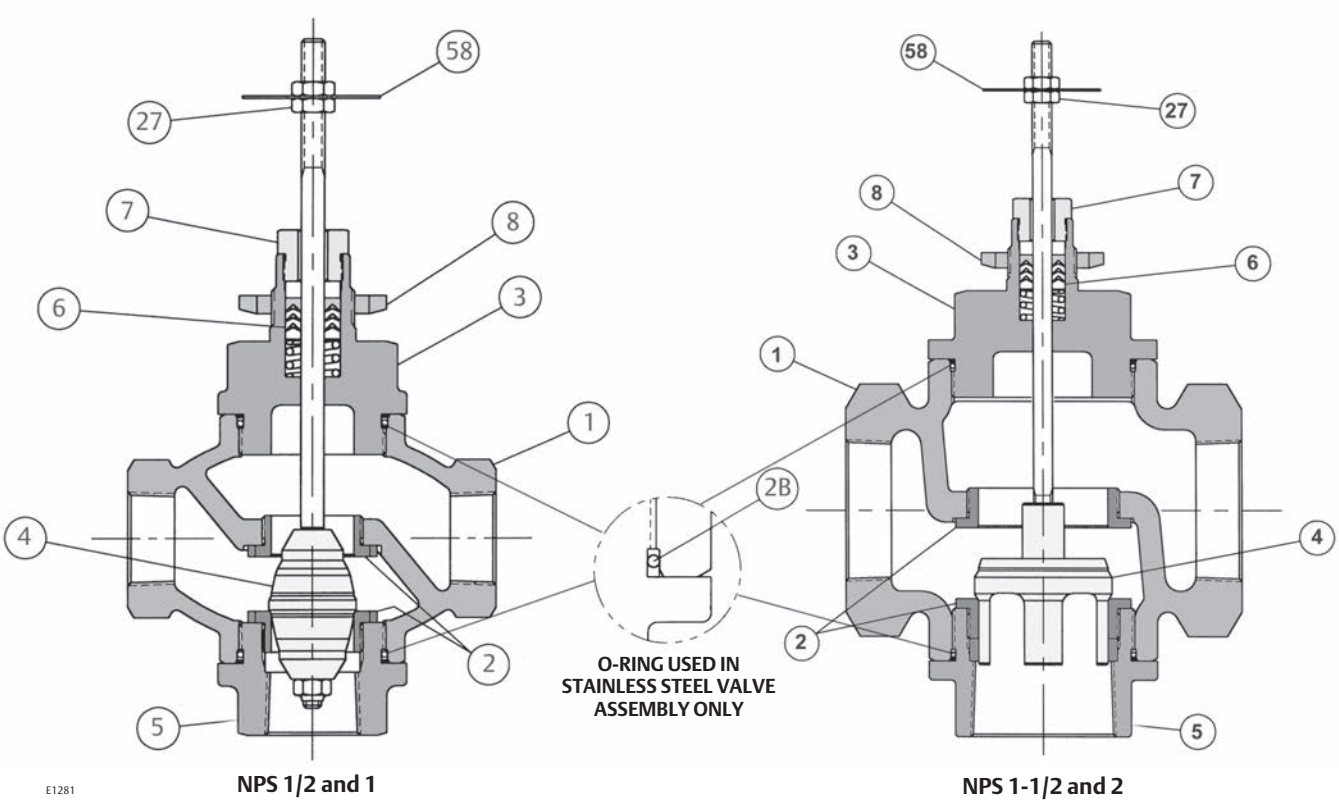


Table 2. Materials of Construction

KEY NO.	DESCRIPTION		MATERIAL	
			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
6	Packing	Standard	PTFE (Polytetrafluoroethylene) / PTFE, 25% carbon filled	
		Optional	Molded Graphite Ribbon (Flexible Graphite)	
			ENVIRO-SEAL (Stainless Steel ONLY)	
7	Packing Follower		ASTM A276 S31600 Condition A Stainless Steel	
8	Drive Nut (Yoke)		ASTM A194 S30400 Gr. 8	
27	Locknuts		Stainless Steel (18-8 SST)	
58	Travel Indicator		ASTM A240 S30400	

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

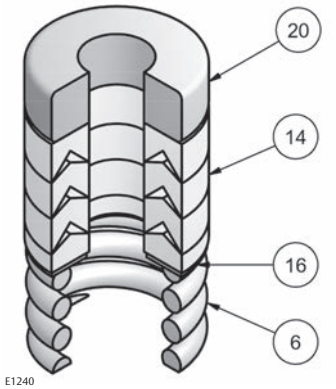


Table 3. Standard Spring-Loaded PTFE V-Ring Packing Kit

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)

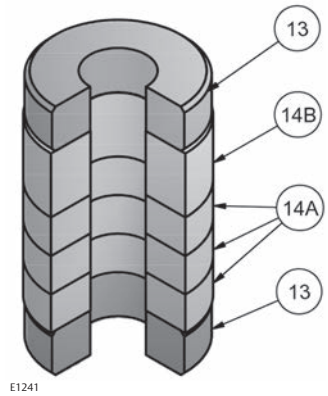


Table 4. Molded Graphite (Flexible Graphite) Packing Kit (Optional)

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)

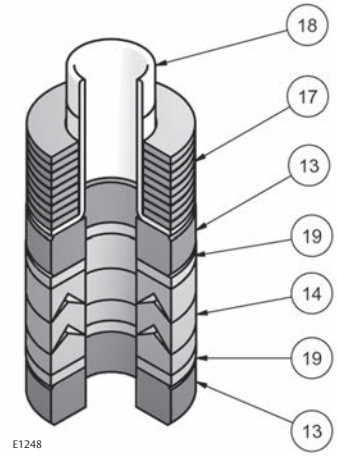


Table 5. ENVIRO-SEAL Packing Kit (Optional for Stainless Steel Only)

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.

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

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

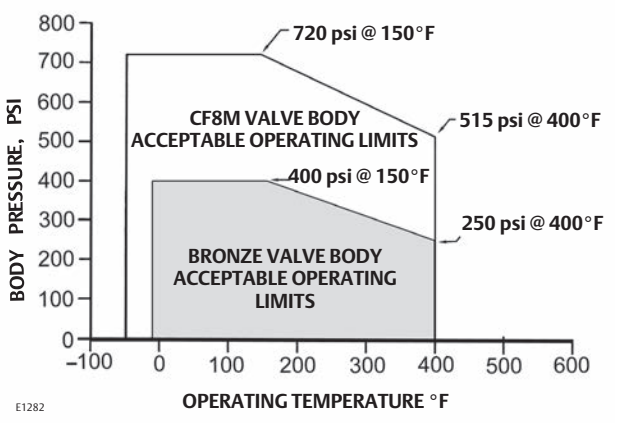


Table 7. Max Cv Values at 100% Plug Opening (1) (Kv = 0.86 x Cv)

VALVE SIZE	ORIFICE DIAMETER	PLUG TRAVEL	RATED VALUES
NPS	**inches**	**inches**	**C_V**
1/2	0.626	0.56	1, 2
	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

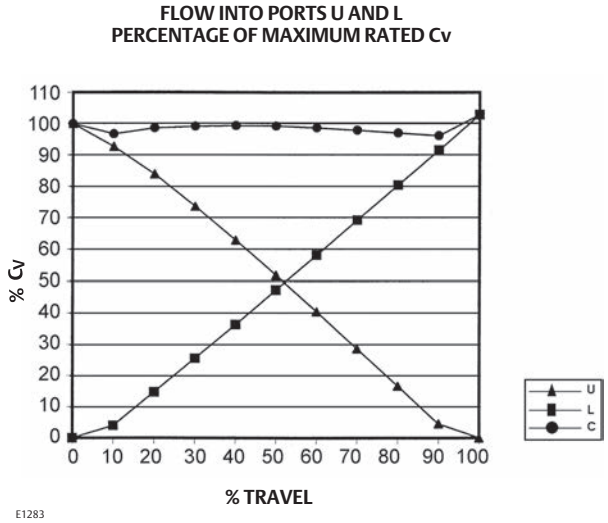


Figure 7. Diverting Service Flow Characteristics

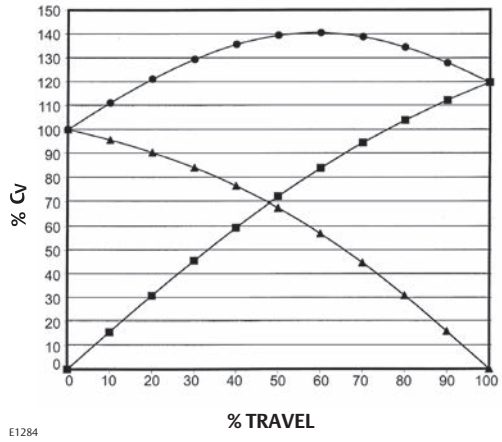
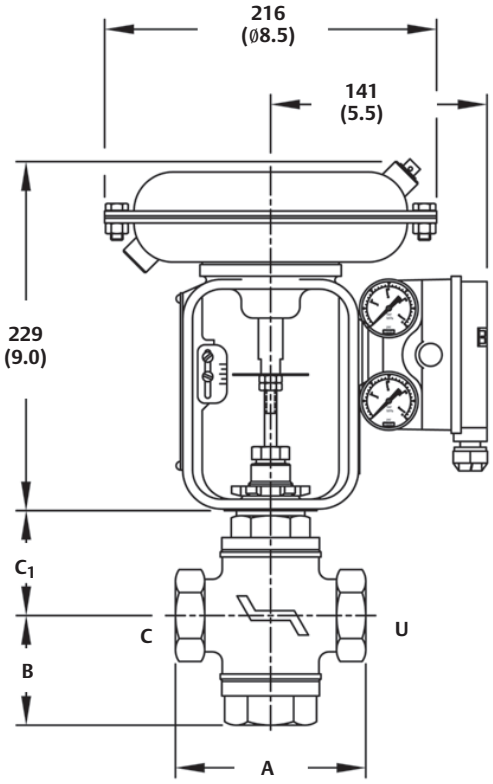


Table 8. Valve Body Dimensions and Weights: NPT Valve Bodies Only

VALVE SIZE	VALVE BODY MATERIAL						TRAVEL	WEIGHT
	BRONZE, NPT			STAINLESS STEEL, NPT (A)				
NPS	A	B	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



mm
(inch)

24000 3-WAY ATC/FAIL OPEN ACTUATOR WITH HANDWHEEL

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

Table 9. Application Port(1)

Service	Inlet	Outlet
Diverting	C	U and L
Mixing	U and L	C

1. C = Common port, U = Upper port, L = Lower port

Figure 9. Mixing and Diverting Applications

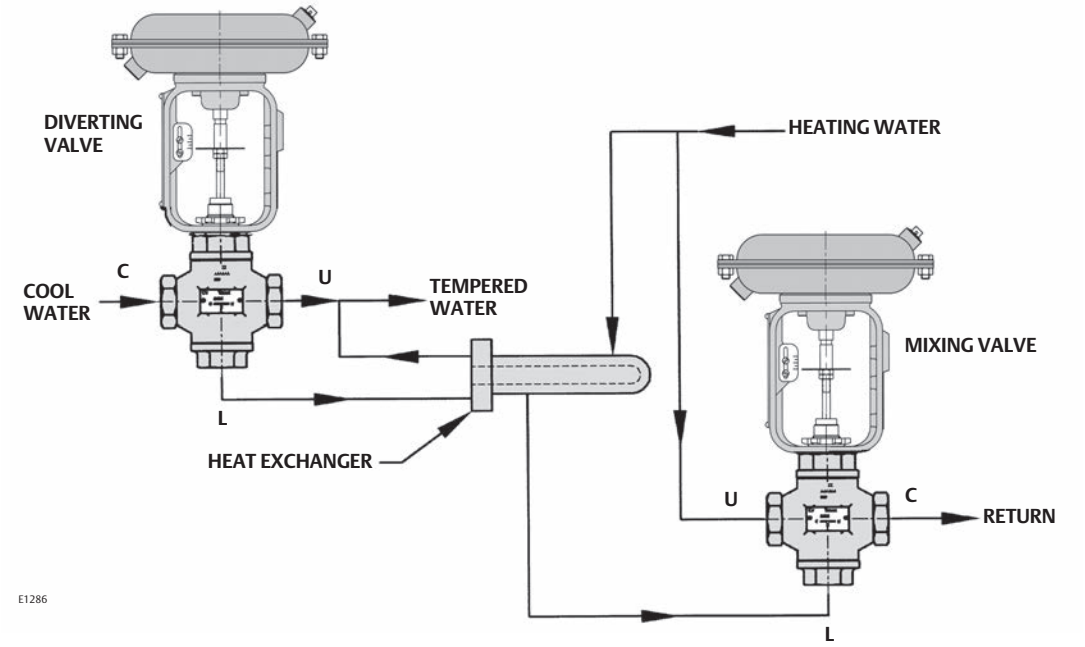


Table 10. Model Numbering System

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

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

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