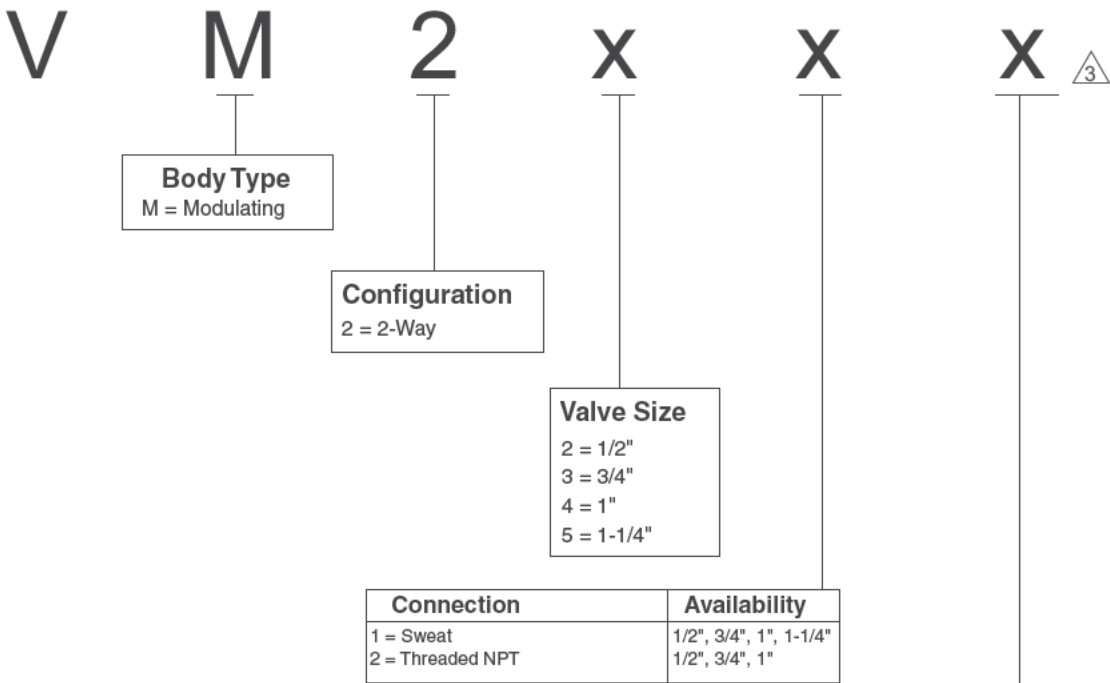




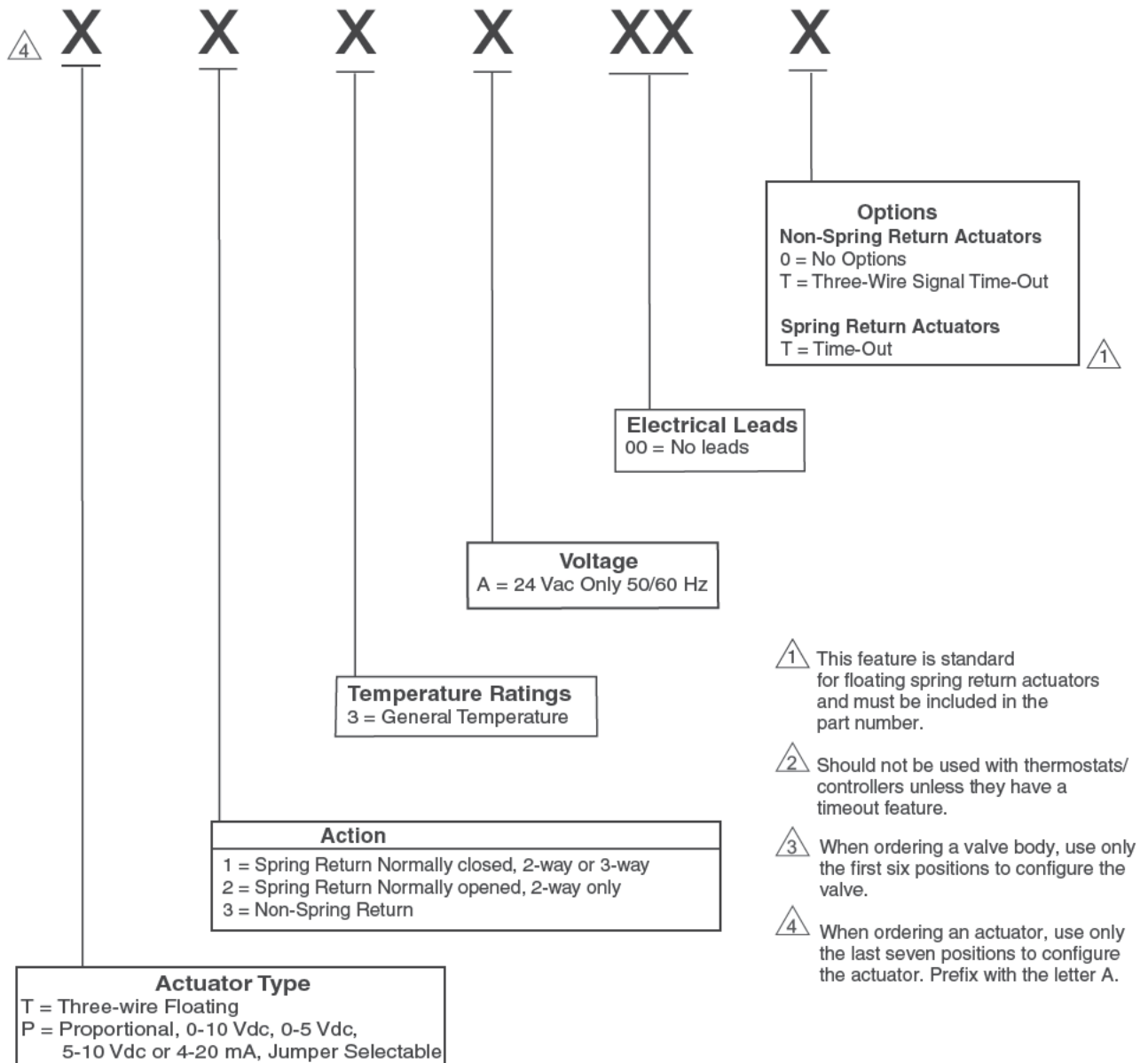
Modulating Zone



CV Size			
		Size	Connection Type
	2-way/3-way		
1 =	1.0	1/2"	1, 2
2 =	2.0	1/2"	1, 2
		3/4"	1, 2
3 =	4.0	1/2"	1, 2
		3/4"	1, 2
		1"	1
7 =	7.5	3/4"	1, 2
		1"	1, 2
	8.0	1-1/4"	1

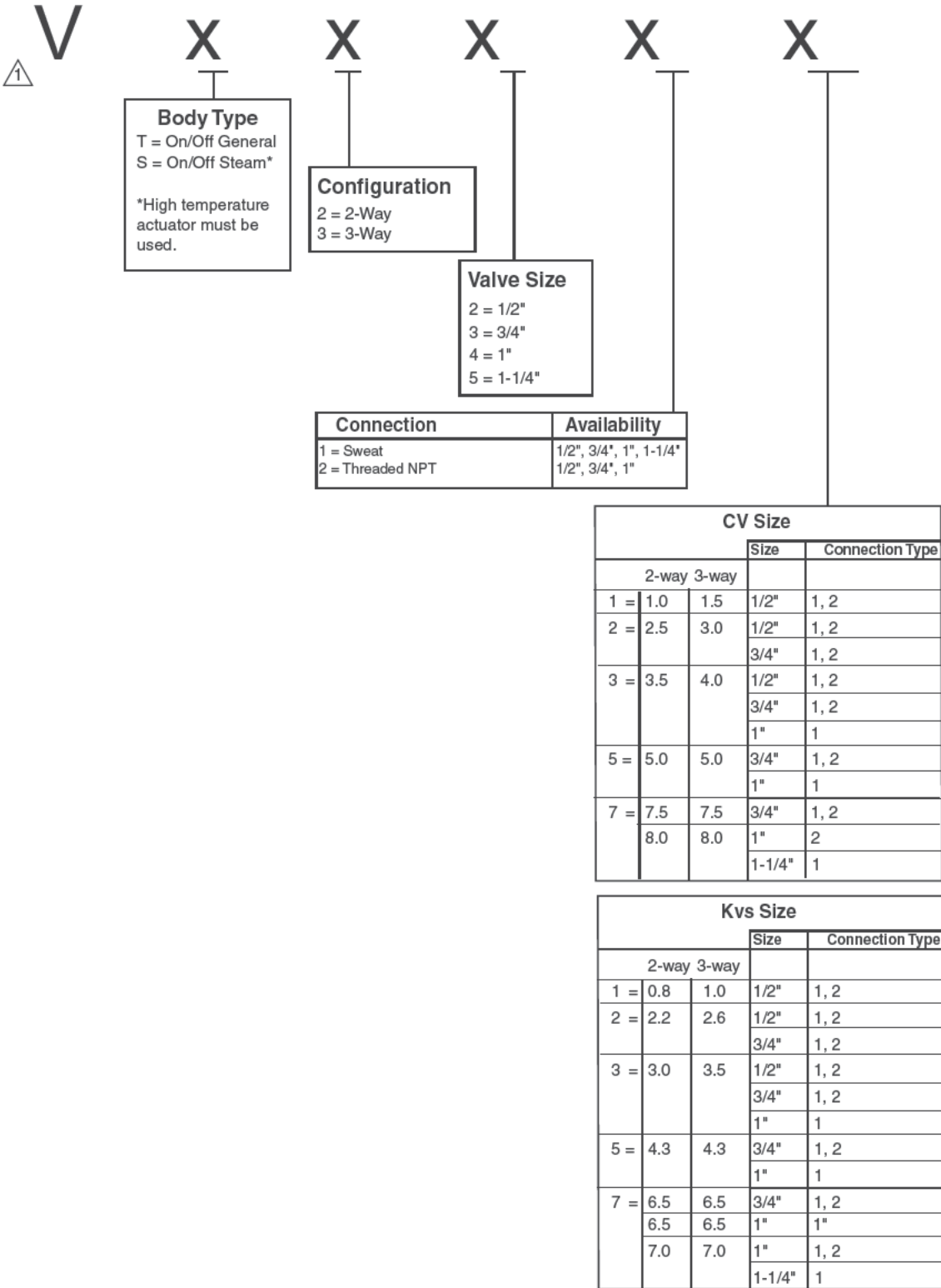
Kvs Size			
		Size	Connection Type
	2-way/3-way		
1 =	0.8	1/2"	1, 2
2 =	1.7	1/2"	1, 2
		3/4"	1, 2
3 =	3.5	1/2"	1, 2
		3/4"	1, 2
		1"	1
7 =	6.5	3/4"	1, 2
		1"	1, 2
	7.0	1-1/4"	1

Valve Assemblies

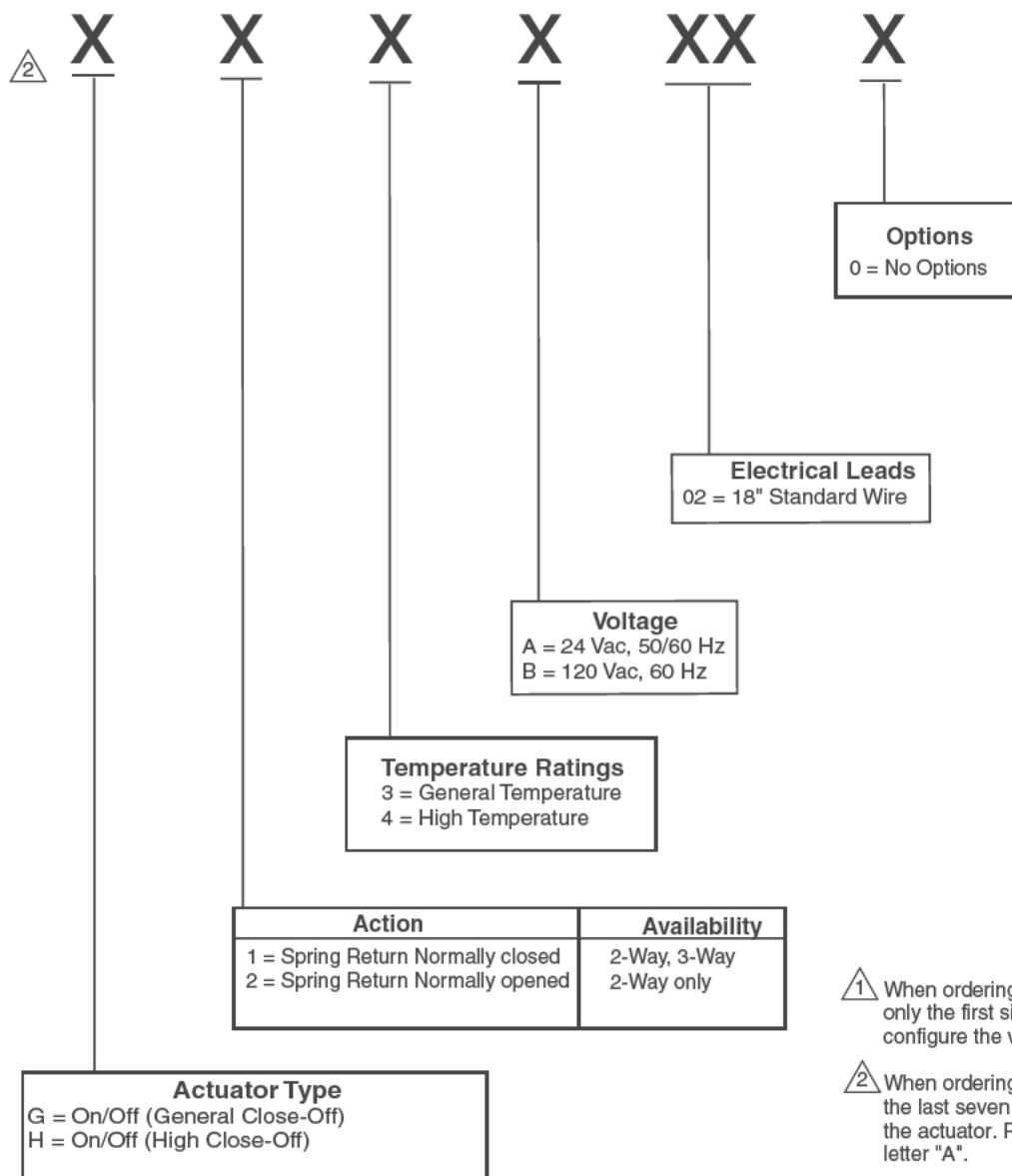


Available Actuators				
Part Number	Action	Position	Actuator Type	Option
AT13A00T	Spring Return	N.C.	Three Wire Floating	With Time Out
AT23A00T	Spring Return	N.O.	Three Wire Floating	With Time Out
AT33A000	Non Spring Return		Three Wire Floating	None
AT33A00T	Non Spring Return		Three Wire Floating	With Time Out
AP13A000	Spring Return	N.C.	Proportional	None
AP23A000	Spring Return	N.O.	Proportional	None
AP33A000	Non Spring Return		Proportional	None

Two-Position Zone



Valve Assemblies



① When ordering valve body, use only the first six positions to configure the valve.

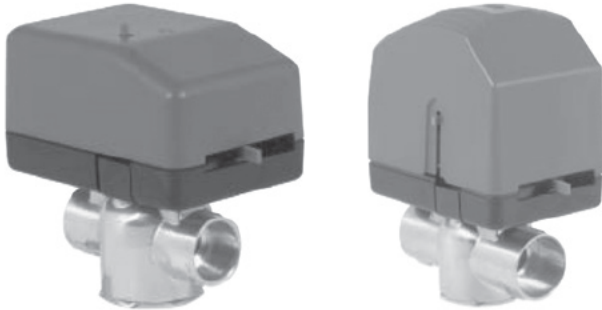
② When ordering actuator, only use the last seven positions to configure the actuator. Prefix with the letter "A".

Body & Actuator Combination Requirements

Temperature Configurations	
Body Configuration V T X X X X T = General S = Steam If body configuration is T, actuator temp rating can be 3 or 4. If body configuration is S, actuator temp rating must be 4.	Actuator Spring Return Mode A X X 3 X X X X 3 = General Temperature 4 = High Temperature If actuator temp rating is 3, body style must be T. If actuator temp rating is 4, body style can be S or T.

Modulating Valve Spring and Non-Spring Return

AT, AP Series



Features

- Magnetic clutch to maximize the life of the motor and gear train.
- Manual operating level position indicator facilitates field setup.
- Easy to use terminal blocks.
- Actuator can be installed after the valve body.
- Three-wire floating and 0 to 10 Vdc or 4 to 20 mA proportional available.
- Spring will return actuator to normal position when the power is lost.

Two Position Spring and Non-Spring Return

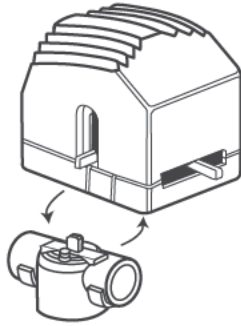
AG, AH Series



Features

- Hysteresis synchronous motor for long life.
- Spring return operation.
- Valve body rated for 300 psig (20.6 bar) static pressure.
- Available in a variety of voltages.
- Actuator mounts directly onto the valve body without the need for linkages or calibration.
- Manual opening lever (normally closed only).
- Actuator can be replaced without any tools, or removal of the valve from the system.
- VS series valves available for low pressure steam.

Erie™ ½"...1" NPT 2-Way SR Modulating N.O./N C. and 3-Way N C.



Flow Type	1 to 4 Cv equal %; 7.5/8 Cv inea
Material	Body Forged brass Seat Brass Stem Nickel plated brass Paddle/Plug Highly saturated itirile
Fluid Temperature	32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C)
Maximum Static Pressure	400 psi (20.6 bar)
Seat Leakage	ANSI IV

2-Way SR Modulating N.O.

Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)	Floating With Timeout 24 Vac	Proportional ^a 0-10 V, 4-20 mA
		Motor Close		
1/2	1 (0.8)	50 (344)	VM2221T23A00T	VM2221P23A000
	2 (1.7)	50 (344)	VM2222T23A00T	VM2222P23A000
	4 (3.5)	35 (241)	VM2223T23A00T	VM2223P23A000
3/4	2 (1.7)	50 (344)	VM2322T23A00T	VM2322P23A000
	4 (3.5)	35 (241)	VM2323T23A00T	VM2323P23A000
	7.5 (6.5)	35 (241)	VM2327T23A00T	VM2327P23A000
1	8 (6.9)	35 (241)	VM2427T23A00T	VM2427P23 000

2-Way SR Modulating N.C.

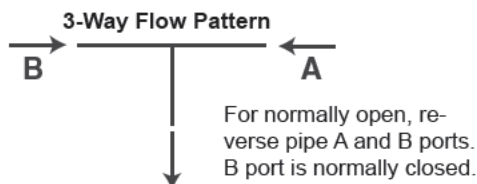
Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)		Floating With Timeout 24 Vac	Proportional ^a 0-10 V, 4-20 mA
		Spring Close	Motor Close		
1/2	1 (0.8)	50 (344)	50 (344)	VM2221T13A00T	VM2221P13A000
	2 (1.7)	20 (138)	50 (344)	VM2222T13A00T	VM2222P13A000
	4 (3.5)	20 (138)	35 (241)	VM2223T13A00T	VM2223P13A000
3/4	2 (1.7)	20 (138)	50 (344)	VM2322T13A00T	VM2322P13A000
	4 (3.5)	20 (138)	35 (241)	VM2323T13A00T	VM2323P13A000
	7.5 (6.5)	15 (103)	35 (241)	VM2327T13A00T	VM2327P13A000
1	8 (6.9)	15 (103)	35 (241)	VM2427T13A00T	VM2427P13A000

^a Factory proportional control signal is direct acting. An increase in control signal will open a N.C valve and close a N.O. valve.

3-Way Mixing SR Modulating N.C.

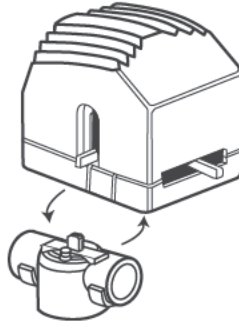
Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)		Floating With Timeout 24 Vac	Proportional ^a 0-10 V, 4-20 mA
		Spring Close	Motor Close		
1/2	1 (0.8)	50 (344)	50 (344)	VM3221T13A00T	VM3221P13A000
	2 (1.7)	20 (138)	50 (344)	VM3222T13A00T	VM3222P13A000
	4 (3.5)	20 (138)	35 (241)	VM3223T13A00T	VM3223P13A000
3/4	2 (1.7)	20 (138)	50 (344)	VM3322T13A00T	VM3322P13A000
	4 (3.5)	20 (138)	35 (241)	VM3323T13A00T	VM3323P13A000
	7.5 (6.5)	15 (103)	35 (241)	VM3327T13A00T	VM3327P13A000
1	8 (6.9)	15 (103)	35 (241)	VM3427T13A00T	VM3427P13A000

^a Factory proportional control signal is direct-acting. An increase in control signal will open B port and close A port.



Actuator Code Table		
Operation	Model	Description
2-Way N.O.	AT23A00T	3-wire Floating with Timeout
2-Way N.C.	AT13A00T	
3-Way N C.	AT13A00T	

Erie™ ½"...1¼" Sweat Ends 2-Way Modulating N O /N.C and 3-Way Mixing SR N.C.



Flow Type	1 to 4 Cv equal %; 7.5/8 Cv linear	
Material	Body	Forged brass
	Seat	Brass
	Stem	Nickel plated brass
	Paddle/Plug	Highly saturated nitrile
Fluid Temperature	32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C)	
Maximum Static Pressure	400 psi (20.6 bar)	
Seat Leakage	ANSI IV	

2-Way SR Modulating N.O.

Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)	Floating With Timeout 24 Vac	Proportional ^a 0-10 V, 4-20 mA
		Motor Close		
1/2	1 (0.8)	50 (344)	VM2211T23A00T	VM2211P23A000
	2 (1.7)	50 (344)	VM2212T23A00T	VM2212P23A000
	4 (3.5)	35 (241)	VM2213T23A00T	VM2213P23A000
3/4	2 (1.7)	50 (344)	VM2312T23A00T	VM2312P23A000
	4 (3.5)	35 (241)	VM2313T23A00T	VM2313P23A000
	7.5 (6.5)	35 (241)	VM2317T23A00T	VM2317P23A000
1	4 (3.5)	35 (241)	VM2413T23A00T	VM2413P23A000
	8 (6.9)	35 (241)	VM2417T23A00T	VM2417P23A000
1-1/4	8 (6.9)	35 (241)	VM2517T23A00T	VM2517P23A000

2-Way SR Modulating N.C.

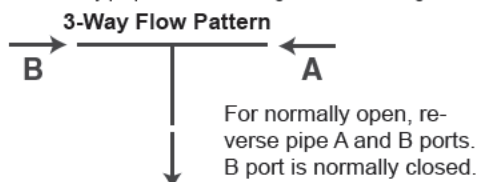
Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)		Floating With Timeout 24 Vac	Proportional ^a 0-10 V, 4-20 mA
		Motor Close	Spring Close		
1/2	1 (0.8)	50 (344)	50 (344)	VM2211T13A00T	VM2211P13A000
	2 (1.7)	50 (344)	20 (138)	VM2212T13A00T	VM2212P13A000
	4 (3.5)	35 (241)		VM2213T13A00T	VM2213P13A000
3/4	2 (1.7)	50 (344)		VM2312T13A00T	VM2312P13A000
	4 (3.5)	35 (241)		VM2313T13A00T	VM2313P13A000
	7.5 (6.5)	35 (241)	15 (103)	VM2317T13A00T	VM2317P13A000
1	4 (3.5)	35 (241)	20 (138)	VM2413T13A00T	VM2413P13A000
	8 (6.9)	35 (241)	15 (103)	VM2417T13A00T	VM2417P13A000
1-1/4	8 (6.9)	35 (241)		VM2517T13A00T	VM2517P13A000

a-Factory proportional control signal is direct-acting. An increase in control signal will open a N.C. valve and close a N.O. valve.

3-Way SR Mixing N.C.

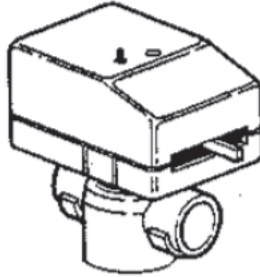
Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)		Floating With Timeout 24 Vac	Proportional ^a 0-10 V, 4-20 mA
		Spring Close	Motor Close		
1/2	1 (0.8)	50 (344)	50 (344)	VM3211T13A00T	VM3211P13A000
	2 (1.7)	20 (138)	50 (344)	VM3212T13A00T	VM3212P13A000
	4 (3.5)	20 (138)	35 (241)	VM3213T13A00T	VM3213P13A000
3/4	2 (1.7)	20 (138)	50 (344)	VM3312T13A00T	VM3312P13A000
	4 (3.5)	20 (138)	35 (241)	VM3313T13A00T	VM3313P13A000
	7.5 (6.5)	15 (103)	35 (241)	VM3317T13A00T	VM3317P13A000
1	4 (3.5)	20 (138)	35 (241)	VM3413T13A00T	VM3413P13A000
	8 (6.9)	15 (103)	35 (241)	VM3417T13A00T	VM3417P13A000
1-1/4	8 (6.9)	15 (103)	35 (241)	VM3517T13A00T	VM3517P13A000

^a Factory proportional control signal is direct-acting. An increase in control signal will open B port and close A port.



Actuator Code Table		
Operation	Model	Description
2-Way N.O.	AT23A00T	3-wire Floating with Timeout
2-Way N.C.	AT13A00T	
3-Way N.C.	AT13A00T	

Erie™ ½"...1" NPT 2-Way Modulating & 3-Way Mixing NSR



Flow Type	1 to 4 Cv equa %; 7.5/8 Cv linear
Material	Body Forged brass Seat Brass Stem Nickel plated brass Paddle/Plug Highly saturated nitrile
Fluid Temperature	32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C)
Maximum Static Pressure	400 psi (20.6 bar)
Seat Leakage	ANSI IV

2-Way NSR Modulating	Size In.	Cv (K _{vs})	Close Off Pressure psi (kPa) Motor Close	Floating With Timeout 24 ac	Floating Requires Thermostat/Controller with Timeout. 24 Vac	Proportional ^a 0-10 V, 4-20 mA
	1/2	1 (0.8)	50 (344)	VM2221T33A00T	VM2221T33A000	VM2221P33A000
		2 (1.7)	50 (344)	VM2222T33A00T	VM2222T33A000	VM2222P33A000
		4 (3.5)	35 (241)	VM2223T33A00T	VM2223T33A000	VM2223P33A000
	3/4	2 (1.7)	50 (344)	VM2322T33A00T	VM2322T33A000	VM2322P33A000
		4 (3.5)	35 (241)	VM2323T33A00T	VM2323T33A000	VM2323P33A000
		7.5 (6.5)	35 (241)	VM2327T33A00T	VM2327T33A000	VM2327P33A000
	1	8 (6.9)	35 (241)	VM2427T33A00T	VM2427T33A000	VM2427P33A000

a-Factory proportional control signal is direct-acting. An increase in control signal will open this model.

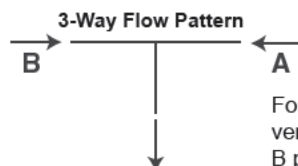
3-Way NSR Mixing	Size In.	Cv (K _{vs})	Close Off Pressure psi (kPa) Motor Close	Floating With Timeout 24 Vac	Floating Requires Thermostat/Controller with Timeout. 24 Vac	Proportional ^a 0-10 V, 4-20 mA
	1/2	1 (0.8)	50 (344)	VM3221T33A00T	VM3221T33A000	VM3221P33A000
		2 (1.7)	50 (344)	VM3222T33A00T	VM3222T33A000	VM3222P33A000
		4 (3.5)	35 (241)	VM3223T33A00T	VM3223T33A000	VM3223P33A000
	3/4	2 (1.7)	50 (344)	VM3322T33A00T	VM3322T33A000	VM3322P33A000
		4 (3.5)	35 (241)	VM3323T33A00T	VM3323T33A000	VM3323P33A000
		7.5 (6.5)	35 (241)	VM3327T33A00T	VM3327T33A000	VM3327P33A000
	1	8 (6.9)	35 (241)	VM3427T33A00T	VM3427T33A000	VM3427P33A000

a-Factory proportional control signal is direct-acting. An increase in control signal will open B port and close A port.

Erie™ ½"...1¼" Sweat Ends 2-Way NSR Modulating

Size In.	Cv (K _{vs})	Close Off Pressure psi (kPa) Motor Close	Floating With Timeout 24 Vac	Floating Requires Thermostat/Controller with Timeout. 24 Vac	Proportional ^a 0-10 V, 4-20 mA
1/2	1 (0.8)	50 (344)	VM2211T33A00T	VM2211T33A000	VM2211P33A000
	2 (1.7)	50 (344)	VM2212T33A00T	VM2212T33A000	VM2212P33A000
	4 (3.5)	35 (241)	VM2213T33A00T	VM2213T33A000	VM2213P33A000
3/4	2 (1.7)	50 (344)	VM2312T33A00T	VM2312T33A000	VM2312P33A000
	4 (3.5)	35 (241)	VM2313T33A00T	VM2313T33A000	VM2313P33A000
	7.5 (6.5)	35 (241)	VM2317T33A00T	VM2317T33A000	VM2317P33A000
1	4 (3.5)	35 (241)	VM2413T33A00T	VM2413T33A000	VM2413P33A000
	8 (6.9)	35 (241)	VM2417T33A00T	VM2417T33A000	VM2417P33A000
1-1/4	8 (6.9)	35 (241)	VM2517T33A00T	VM2517T33A000	VM2517P33A000

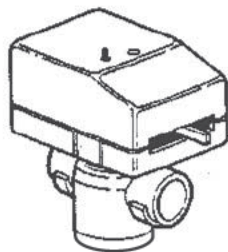
a-Factory proportional control signal is direct-acting. An increase in control signal will open this model.



For normally open, reverse pipe A and B ports. B port is normally closed.

Actuator Code Table		
Operation	Model	Description
2-Way NPT	AP33A000	0...10 Vdc 4...20 mA field selectable
3-Way NPT		
2-Way Sweat		

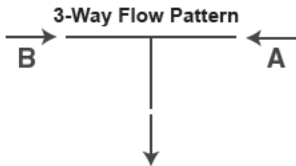
Erie™ ½"...1¼" NPT 3-Way Mixing SR Modulating



Flow Type	1 to 4 Cv equal % 7.5/8 Cv linear	
Body	Forged brass	
Seat	Bras	
Stem	Nickel plated bra s	
Paddle/Plug	High y saturated nitrile	
Maximum Static Pressure	400 psi (20 6 bar)	
Seat Leakage	ANSI IV	
Fluid Temperature	32 to 200 °F @ 104° F ambient (0 to 93 °C @ 40 °C)	

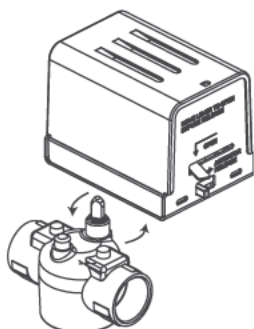
Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa) Motor Close	Floating With Timeout 24 Vac	Floating Requires Thermostat/Controller with Timeout. 24 Vac	Proportional ^a 0-10 V, 4-20 mA, 0-5 Vdc or 5-10 Vdc
1/2	1 (0.8)	50 (344)	VM3211T33A00T	VM3211T33A000	VM3211P33A000
	2 (1.7)	50 (344)	VM3212T33A00T	VM3212T33A000	VM3212P33A000
	4 (3.5)	35 (241)	VM3213T33A00T	VM3213T33A000	VM3213P33A000
3/4	2 (1.7)	50 (344)	VM3312T33A00T	VM3312T33A000	VM3312P33A000
	4 (3.5)	35 (241)	VM3313T33A00T	VM3313T33A000	VM3313P33A000
	7.5 (6.5)	35 (241)	VM3317T33A00T	VM3317T33A000	VM3317P33A000
1	4 (3.5)	35 (241)	VM3413T33A00T	VM3413T33A000	VM3413P33A000
	8 (6.9)	35 (241)	VM3417T33A00T	VM3417T33A000	VM3417P33A000
1-1/4	8 (6.9)	35 (241)	VM3517T33A00T	VM3517T33A000	VM3517P33A000

a-Factory proportional control signal is direct-acting. An increase in control signal will open B port and close A port.



Actuator Code Table		
Operation	Model	Description
3-Way NPT	AP33A000	0...10 Vdc 4...20 mA field selectable

Erie™ ½"...1¼" Two Position 2-Way SR General Close Off - Sweat Ends

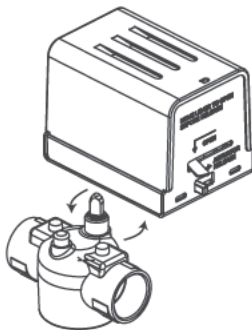


Flow Type	On, off, normally open or closed
Material	Body Forged brass Seat Brass Stem Nickel plated brass Paddle Highly saturated nitrile (VS), Buna N (VT)
Fluid Temperature	VT Series: 32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C) Water VS Series: 32 to 250 °F @ 169 °F ambient (0 to 121 °C @ 76 °C) Water or 15 psi Steam
Maximum Static Pressure	400 psi (20.6 bar)
Seat Leakage	ANSI IV

Size in.	Cv (K _{VS})	Close Off Pressure psi (kPa)	Normally Open/Normally Closed	VT Series 32 to 200 °F		VS Series - High Temp 32 to 250 °F	
				24 Vac	120 Vac	24 Vac	120 Vac
1/2	1 (0.8)	60 (413)	NC	VT2211G13A020	VT2211G13B020	VS2211G14A020	VS2211G14B020
			NO	VT2211G23A020	VT2211G23B020	VS2211G24A020	VS2211G24B020
	2.5 (2.2)	40 (275)	NC	VT2212G13A020	VT2212G13B020	VS2212G14A020	VS2212G14B020
			NO	VT2212G23A020	VT2212G23B020	VS2212G24A020	VS2212G24B020
	3.5 (3)	25 (172)	NC	VT2213G13A020	VT2213G13B020	VS2213G14A020	VS2213G14B020
			NO	VT2213G23A020	VT2213G23B020	VS2213G24A020	VS2213G24B020
3/4	2.5 (2.2)	40 (275)	NC	VT2312G13A020	VT2312G13B020	VS2312G14A020	VS2312G14B020
			NO	VT2312G23A020	VT2312G23B020	VS2312G24A020	VS2312G24B020
	3.5 (3)	25 (172)	NC	VT2313G13A020	VT2313G13B020	VS2313G14A020	VS2313G14B020
			NO	VT2313G23A020	VT2313G23B020	VS2313G24A020	VS2313G24B020
	5 (4.3)	20 (138)	NC	VT2315G13A020	VT2315G13B020	VS2315G14A020	VS2315G14B020
			NO	VT2315G23A020	VT2315G23B020	VS2315G24A020	VS2315G24B020
	7.5 (6.5)	17 (117)	NC	VT2317G13A020	VT2317G13B020	VS2317G14A020	VS2317G14B020
			NO	VT2317G23A020	VT2317G23B020	VS2317G24A020	VS2317G24B020
1	5 (4.3)	20 (138)	NC	VT2415G13A020	VT2415G13B020	VS2415G14A020	VS2415G14B020
			NO	VT2415G23A020	VT2415G23B020	VS2415G24A020	VS2415G24B020
	7.5 (6.5)	17 (117)	NC	VT2417G13A020	VT2417G13B020	VS2417G14A020	VS2417G14B020
			NO	VT2417G23A020	VT2417G23B020	VS2417G24A020	VS2417G24B020
1-1/4	8 (6.9)	17 (117)	NC	VT2517G13A020	VT2517G13B020	VS2517G14A020	VS2517G14B020
			NO	VT2517G23A020	VT2517G23B020	VS2517G24A020	VS2517G24B020

Actuator Code Table	
Model	Description
AG13A020, AG23A020, AG14A020, AG24A020, AG13B020, AG23B020, AG14B020, AG24B020	2-Position

Erie™ 1/2"...1" Two Position 2-Way SR General Close Off - Female NPT

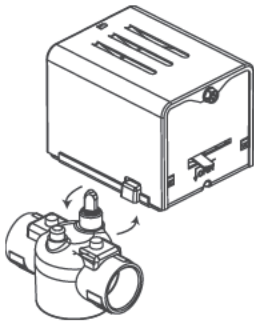


Flow Type	On, off, normally open or closed
Body	Forged brass
Seat	Brass
Stem	Nickel plated brass
Paddle	Highly saturated nitrile (VS), Buna N (VT)
Fluid Temperature	VT Series: 32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C) Water VS Series: 32 to 250 °F @ 169 °F ambient (0 to 121 °C @ 76 °C) Water or 15 psi Steam
Maximum Static Pressure	400 psi (20.6 bar))
Seat Leakage	ANSI IV

Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)	Normally Open/Normally Closed	VT Series 32 to 200 °F		VS Series 32 to 250 °F	
				24 Vac	120 Vac	24 Vac	120 Vac
1/2	1 (0.8)	60 (413)	NC	VT2221G13A020	VT2221G13B020	VS2221G14A020	VS2221G14B020
			NO	VT2221G23A020	VT2221G23B020	VS2221G24A020	VS2221G24B020
	2.5 (2.2)	40 (275)	NC	VT2222G13A020	VT2222G13B020	VS2222G14A020	VS2222G14B020
			NO	VT2222G23A020	VT2222G23B020	VS2222G24A020	VS2222G24B020
	3.5 (3)	25 (172)	NC	VT2223G13A020	VT2223G13B020	VS2223G14A020	VS2223G14B020
			NO	VT2223G23A020	VT2223G23B020	VS2223G24A020	VS2223G24B020
3/4	2.5 (2.2)	40 (275)	NC	VT2322G13A020	VT2322G13B020	VS2322G14A020	VS2322G14B020
			NO	VT2322G23A020	VT2322G23B020	VS2322G24A020	VS2322G24B020
	3.5 (3)	25 (172)	NC	VT2323G13A020	VT2323G13B020	VS2323G14A020	VS2323G14B020
			NO	VT2323G23A020	VT2323G23B020	VS2323G24A020	VS2323G24B020
	5 (4.3)	20 (138)	NC	VT2325G13A020	VT2325G13B020	VS2325G14A020	VS2325G14B020
			NO	VT2325G23A020	VT2325G23B020	VS2325G24A020	VS2325G24B020
	7.5 (6.5)	17 (117)	NC	VT2327G13A020	VT2327G13B020	VS2327G14A020	VS2327G14B020
			NO	VT2327G23A020	VT2327G23B020	VS2327G24A020	VS2327G24B020
1	8 (6.9)	17 (117)	NC	VT2427G13A020	VT2427G13B020	VS2427G14A020	VS2427G14B020
			NO	VT2427G23A020	VT2427G23B020	VS2427G24A020	VS2427G24B020

Actuator Code Table	
Model	Description
AG13A020, AG23A020, AG14A020, AG24A020 AG13B020, AG23B020 AG14B020, AG24B020	2-Position

Erie™ ½"...1¼" 2-Way SR High Close Off Two Position - Sweat Ends

**Flow Type**

Material
Body
Seat
Stem
Paddle

Forged brass
 Brass
 Nickel plated brass
 Highly saturated nitrile (VS), Buna N (VT)
 VT Series: 32 to 200 °F @ 104 °F ambient
 (0 to 93 °C @ 40 °C) Water
 VS Series: 32 to 250 °F @ 169 °F ambient
 (0 to 121 °C @ 76 °C) Water or 15 psi Steam

Fluid Temperature**Maximum Static Pressure**

400 psi (20.6 bar)

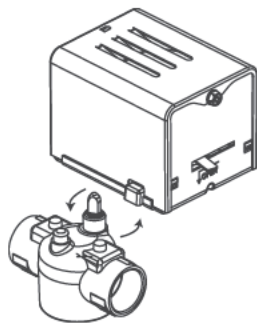
Seat Leakage

ANSI IV

Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)	Normally Open/Normally Closed	VT Series 32 to 200 °F		VS Series 32 to 250 °F	
				24 Vac	120 Vac	24 Vac	120 Vac
1/2	1 (0.8)	75 (517)	NC	VT2211H13A020	VT2211H13B020	VS2211H14A020	VS2211H14B020
			NO	VT2211H23A020	VT2211H23B020	VS2211H24A020	VS2211H24B020
	2.5 (2.2)	50 (345)	NC	VT2212H13A020	VT2212H13B020	VS2212H14A020	VS2212H14B020
			NO	VT2212H23A020	VT2212H23B020	VS2212H24A020	VS2212H24B020
	3.5 (3)	30 (207)	NC	VT2213H13A020	VT2213H13B020	VS2213H14A020	VS2213H14B020
			NO	VT2213H23A020	VT2213H23B020	VS2213H24A020	VS2213H24B020
3/4	2.5 (2.2)	50 (345)	NC	VT2312H13A020	VT2312H13B020	VS2312H14A020	VS2312H14B020
			NO	VT2312H23A020	VT2312H23B020	VS2312H24A020	VS2312H24B020
	3.5 (3)	30 (207)	NC	VT2313H13A020	VT2313H13B020	VS2313H14A020	VS2313H14B020
			NO	VT2313H23A020	VT2313H23B020	VS2313H24A020	VS2313H24B020
	5 (4.3)	25 (172)	NC	VT2315H13A020	VT2315H13B020	VS2315H14A020	VS2315H14B020
			NO	VT2315H23A020	VT2315H23B020	VS2315H24A020	VS2315H24B020
	7.5 (6.5)	20 (138)	NC	VT2317H13A020	VT2317H13B020	VS2317H14A020	VS2317H14B020
			NO	VT2317H23A020	VT2317H23B020	VS2317H24A020	VS2317H24B020
1	5 (4.3)	25 (172)	NC	VT2415H13A020	VT2415H13B020	VS2415H14A020	VS2415H14B020
			NO	VT2415H23A020	VT2415H23B020	VS2415H24A020	VS2415H24B020
	7.5 (6.5)	20 (138)	NC	VT2417H13A020	VT2417H13B020	VS2417H14A020	VS2417H14B020
			NO	VT2417H23A020	VT2417H23B020	VS2417H24A020	VS2417H24B020
1-1/4	8 (6.9)	20 (138)	NC	VT2517H13A020	VT2517H13B020	VS2517H14A020	VS2517H14B020
			NO	VT2517H23A020	VT2517H23B020	VS2517H24A020	VS2517H24B020

Actuator Code Table	
Model	Description
AH13A020, AH23A020 AH14A020, AH24A020, AH13B020, AH23B020 AH14B020, AH24B020	2-Position

Erie™ 1/2"...1" 2-Way SR High Close Off
Two Position - Female NPT

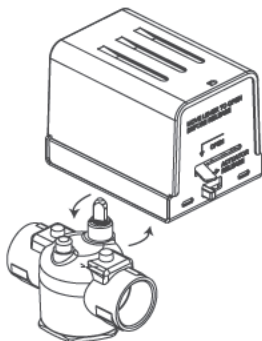


Flow Type	On, off, normally open or closed
Material	Body Seat Stem Paddle
Fluid Temperature	Forged brass Brass Nickel plated brass Highly saturated nitrile (VS), Buna N (VT) VT Series: 32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C) Water VS Series: 32 to 250 °F @ 169 °F ambient (0 to 121 °C @ 76 °C) Water or 15 psi Steam
Maximum Static Pressure	400 psi (20.6 bar)
Seat Leakage	ANSI IV

Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)	Normally Open/Normally Closed	VT Series 32 to 200 °F		VS Series 32 to 250 °F	
				24 Vac	120 Vac	24 Vac	120 Vac
1/2	1 (0.8)	75 (517)	NC	VT2221H13A020	VT2221H13B020	VS2221H14A020	VS2221H14B020
			NO	VT2221H23A020	VT2221H23B020	VS2221H24A020	VS2221H24B020
	2.5 (2.2)	50 (345)	NC	VT2222H13A020	VT2222H13B020	VS2222H14A020	VS2222H14B020
			NO	VT2222H23A020	VT2222H23B020	VS2222H24A020	VS2222H24B020
	3.5 (3)	30 (207)	NC	VT2223H13A020	VT2223H13B020	VS2223H14A020	VS2223H14B020
			NO	VT2223H23A020	VT2223H23B020	VS2223H24A020	VS2223H24B020
3/4	2.5 (2.2)	50 (345)	NC	VT2322H13A020	VT2322H13B020	VS2322H14A020	VS2322H14B020
			NO	VT2322H23A020	VT2322H23B020	VS2322H24A020	VS2322H24B020
	3.5 (3)	30 (207)	NC	VT2323H13A020	VT2323H13B020	VS2323H14A020	VS2323H14B020
			NO	VT2323H23A020	VT2323H23B020	VS2323H24A020	VS2323H24B020
	5 (4.3)	25 (172)	NC	VT2325H13A020	VT2325H13B020	VS2325H14A020	VS2325H14B020
			NO	VT2325H23A020	VT2325H23B020	VS2325H24A020	VS2325H24B020
	7.5 (6.5)	20 (138)	NC	VT2327H13A020	VT2327H13B020	VS2327H14A020	VS2327H14B020
			NO	VT2327H23A020	VT2327H23B020	VS2327H24A020	VS2327H24B020
1	8 (6.9)	20 (138)	NC	VT2427H13A020	VT2427H13B020	VS2427H14A020	VS2427H14B020
			NO	VT2427H23A020	VT2427H23B020	VS2427H24A020	VS2427H24B020

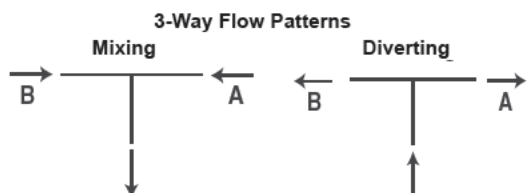
Actuator Code Table	
Model	Description
AH13A020, AH23A020 AH14A020, AH24A020, AH13B020, AH23B020 AH14B020, AH24B020	2-Position

Erie™ ½"...1¼" 3-Way Mixing or Diverting SR N.C. - Sweat Ends



Flow Type	1 to 4 Cv equal % 8 Cv linear
Material	Body Forged brass Seat Brass Stem Nickel plated brass Paddle Highly saturated nitrile (VS), Buna N (VT)
Fluid Temperature	VT Series: 32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C) VS Series: 32 to 250 °F @ 169 °F ambient (0 to 121 °C @ 76 °C)
Maximum Static Pressure	400 psi (20.6 bar)
Seat Leakage	ANSI IV

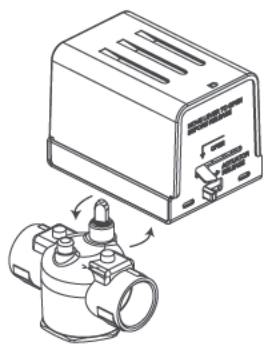
Size in.	Cv (K _{vs})	Close Off Pressure psi (kPa)	VT Series 32 to 200 °F	VS Series - High Temp 32 to 250 °F	Voltage Vac
1/2	1 (0.8)	60 (413)	VT3211G13A020	VS3211G14A020	24
			VT3211G13B020	VS3211G14B020	120
	3 (2.6)	40 (275)	VT3212G13A020	VS3212G14A020	24
			VT3212G13B020	VS3212G14B020	120
	4 (3.4)	25 (172)	VT3213G13A020	VS3213G14A020	24
			VT3213G13B020	VS3213G14B020	120
3/4	3 (2.6)	40 (275)	VT3312G13A020	VS3312G14A020	24
			VT3312G13B020	VS3312G14B020	120
	4 (3.4)	25 (172)	VT3313G13A020	VS3313G14A020	24
			VT3313G13B020	VS3313G14B020	120
	5 (4.3)	20 (138)	VT3315G13A020	VS3315G14A020	24
			VT3315G13B020	VS3315G14B020	120
	7.5 (6.5)	17 (117)	VT3317G13A020	VS3317G14A020	24
			VT3317G13B020	VS3317G14B020	120
1	5 (4.3)	20 (138)	VT3415G13A020	VS3415G14A020	24
			VT3415G13B020	VS3415G14B020	120
	7.5 (6.5)	17 (117)	VT3417G13A020	VS3417G14A020	24
			VT3417G13B020	VS3417G14B020	120
1-1/4	8 (6.9)	17 (117)	VT3517G13A020	VS3517G14B020	24
			VT3517G13B020	VS3517G14B020	120



For normally open, reverse pipe A and B ports. B port is normally closed.

Actuator Code Table	
Model	Description
AG13A020, AG14A020, AG13B020, AG14B020	2-Position

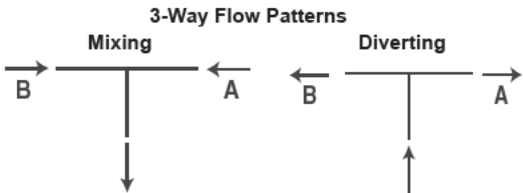
Erie™ 1/2"...1 1/4" 3-Way Mixing or Diverting SR N.C. - Female NPT



Flow Type	1 to 4 Cv equal % 8 Cv linear	
Material	Body	Forged brass
	Seat	Brass
	Stem	Nickel plated brass
	Paddle	Highly saturated nitrile (VS), Buna N (VS)
Fluid Temperature	VT Series: 32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C)	
	VS Series: 32 to 250 °F @ 169 °F ambient (0 to 121 °C @ 76 °C)	
Maximum Static Pressure	400 psi (20.6 bar)	
Seat Leakage	ANSI IV	

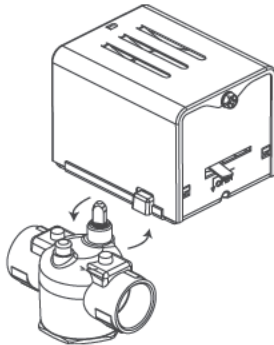
Size in.	Cv (Kvs)	Close Off psig (kPa)	VT Series 32 to 200 °F	VS Series - High Temp 32 to 250 °F	Voltage Vac
1/2	1.5 (1.3)	60 (413)	VT3221G13A020	VS3221G14A020	24
			VT3221G13B020	VS3221G14B020	120
	3 (2.6)	40 (275)	VT3222G13A020	VS3222G14A020	24
			VT3222G13B020	VS3222G14B020	120
	4 (3.4)	25 (172)	VT3223G13A020	VS3223G14A020	24
			VT3223G13B020	VS3223G14B020	120
3/4	3 (2.6)	40 (275)	VT3322G13A020	VS3322G14A020	24
			VT3322G13B020	VS3322G14B020	120
	4 (3.4)	25 (172)	VT3323G13A020	VS3323G14A020	24
			VT3323G13B020	VS3323G14B020	120
	5 (4.3)	20 (138)	VT3325G13A020	VS3325G14A020	24
			VT3325G13B020	VS3325G14B020	120
	7.5 (6.5)	17 (117)	VT3327G13A020	VS3327G14A020	24
			VT3327G13B020	VS3327G14B020	120
1	8 (6.9)	17 (117)	VT3427G13A020	VS3427G14A020	24
			VT3427G13B020	VS3427G14B020	120

9. Zone Valves



Actuator Code Table	
Model	Description
AG13A020, AG14A020, AG13B020, AG14B020	2-Position

Erie™ ½"...1¼" 3-Way Mixing or Diverting SR N.C - Sweat Ends



Flow Type

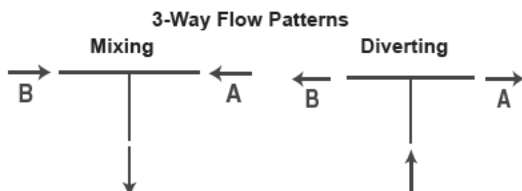
Material
Body
Seat
Stem
Paddle

Forged brass
Brass
Nickel plated brass
Highly saturated nitrile (VS), Buna N (VT)
VT Series: 32 to 200 °F @ 104 °F ambient
(0 to 93 °C @ 40 °C)
VS Series: 32 to 250 °F @ 169 °F ambient
(0 to 121 °C @ 76 °C)

Fluid Temperature

Maximum Static Pressure 400 psi (20.6 bar)
Seat Leakage ANSI IV

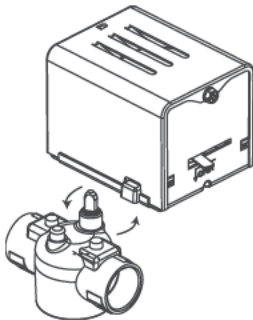
Size in.	Cv (K _{vs})	Close Off psig (kPa)	VT Series 32 to 200 °F		VS Series - High Temp 32 to 250 °F	
			24 Vac	120 Vac	24 Vac	120 Vac
1/2	1.5 (1.3)	75 (517)	VT3211H13A020	VT3211H13B020	VS3211H14A020	VS3211H14B020
	3 (2.6)	50 (344)	VT3212H13A020	VT3212H13B020	VS3212H14A020	VS3212H14B020
	4 (3.4)	30 (208)	VT3213H13A020	VT3213H13B020	VS3213H14A020	VS3213H14B020
3/4	3 (2.6)	50 (344)	VT3312H13A020	VT3312H13B020	VS3312H14A020	VS3312H14B020
	4 (3.4)	30 (208)	VT3313H13A020	VT3313H13B020	VS3313H14A020	VS3313H14B020
	5 (4.3)	25 (172)	VT3315H13A020	VT3315H13B020	VS3315H14A020	VS3315H14B020
	7.5 (6.5)	20 (137)	VT3317H13A020	VT3317H13B020	VS3317H14A020	VS3317H14B020
1	5 (4.3)	25 (172)	VT3415H13A020	VT3415H13B020	VS3415H14A020	VS3415H14B020
	7.5 (6.5)	20 (137)	VT3417H13A020	VT3417H13B020	VS3417H14A020	VS3417H14B020
1-1/4	8 (6.9)	20 (137)	VT3517H13A020	VT3517H13B020	VS3517H14A020	VS3517H14B020



For normally open, reverse pipe A and B ports.
B port is normally closed.

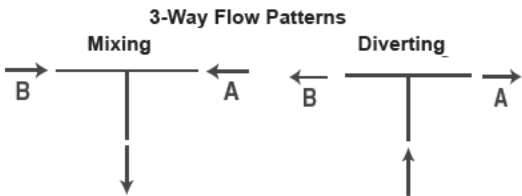
Actuator Code Table	
Model	Description
AH13A020, AH14A020, AH13B020, AH14B020	2-Position

Erie™ 1/2"...1" 3-Way Mixing or Diverting SR N.C. - Female NPT



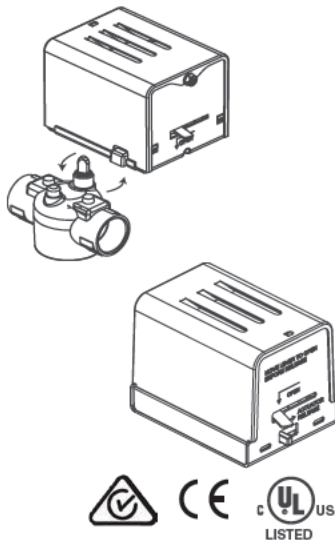
Flow Type	On, off, normal y open or closed	
Body	Forged brass	
Seat	Brass	
Material	Nickel plated brass	
Stem	Highly saturated nitrile (VS), Buna N (VT)	
Paddle	VT Series: 32 to 200 °F @ 104 °F ambient (0 to 93 °C @ 40 °C)	
Fluid Temperature	VS Series: 32 to 250 °F @ 169 °F ambient (0 to 121 °C @ 76 °C)	
Maximum Static Pressure	400 psi (20.6 bar)	
Seat Leakage	ANSI IV	

Size in.	Cv (K _{vs})	Close Off psig (kPa)	VT Series 32 to 200 °F		VS Series 32 to 250 °F	
			24 Vac	120 Vac	24 Vac	120 Vac
1/2	1.5 (1.3)	75 (517)	VT3221H13A020	VT3221H13B020	VS3221H14A020	VS3221H14B020
	3 (2.6)	50 (344)	VT3222H13A020	VT3222H13B020	VS3222H14A020	VS3222H14B020
	4 (3.4)	30 (208)	VT3223H13A020	VT3223H13B020	VS3223H14A020	VS3223H14B020
3/4	3 (2.6)	50 (344)	VT3322H13A020	VT3322H13B020	VS3322H14A020	VS3322H14B020
	4 (3.4)	30 (203)	VT3323H13A020	VT3323H13B020	VS3323H14A020	VS3323H14B020
	5 (4.3)	25 (172)	VT3325H13A020	VT3325H13B020	VS3325H14A020	VS3325H14B020
	7.5 (6.5)	20 (137)	VT3327H13A020	VT3327H13B020	VS3327H14A020	VS3327H14B020
1	8 (6.9)	20 (137)	VT3427H13A020	VT3427H13B020	VS3427H14A020	VS3427H14B020



For normally open, re-
verse pipe A and B ports.
B port is normally closed.

Actuator Code Table	
Model	Description
AH13A020, AH14A020, AH13B020, AH14B020	2-Position



Connections:
Housing
Dimensions:

18 in. leads.
NEMA 1
G Series: 2-3/8 H x 2-3/8 W x 3-11/16 D in.
(60 x 60 x 96 mm)
H Series: 2 7/16 H x 2-5/8 W x 3-11/16 D in.
(62 x 67 x 93 mm)

Override:
MotorType:
Install Instructions

Manual (normally closed models only).
Hysteresis synchronous
Refer to F-26496.

Regulatory
Compliance

c-UL-us LISTED mark for US safety compliance per UL 60730-1 & -2-14, and Canadian compliance per CAN/CSA E60730-1 & -2-14.
CE mark EU safety compliance per EN 60730-1 & -2-14 and per directives 2014-35/EU [LVD], 2014-30/EU [EMC], and 2011/65/EU [RoHS2].
RCM mark compliance for Australian/New Zealand.

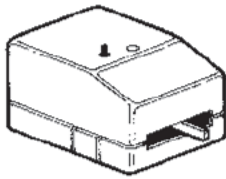
General Close-Off, 2-Position, Power (Open or Close): 9 to 11 Seconds; Spring Return (Open or Close): 4 to 5 Seconds

Model No.	Volts AC	VA	Electrical Position	Temperature Range F (C)	End Of Travel Switch	Wiring
AG13A020	24	7.5	Normally Closed	32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)	No	18 in. (45.7 cm) Leads
AG13B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		
AG14A020	24			32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)		
AG14B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		
AG23A020	24		Normally Open (can only be used on 2-way valve)	32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)		
AG24A020	24			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		
AG23B020	120			32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)		
AG24B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		

High Close Off, 2-Position, Power (Open or Close): 13 to 18 Seconds; Spring Return (Open or Close): 4 to 5 Seconds

AH13A020	24	7.5	Normally Closed	32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)	No	18 in. (45.7 cm) Leads
AH13B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		
AH14A020	24			32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)		
AH14B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		
AH23A020	24		Normally Open (can only be used on 2-way valve)	32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)		
AH23B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		
AH24A020	24			32 to 200°F (Fluid) @ 104°F (Ambient) (0 to 93°C @ 40°C)		
AH24B020	120			32 to 250°F (Fluid) @ 169°F (Ambient) (0 to 121°C @ 76°C)		

Erie™ APx3, ATx3 Series NSR Modulating Actuator

**Connections:****Housing:****Dimensions:****Switches:****Override:****Motor Type: Install****Instructions****Regulatory****Compliance**

Terminal block.

NEMA 1.

2-1/4 H x 2-3/4 W x 4-1/4 D in. (57 x 70 x 108 mm)

None.

Manual.

Stepper motor.

Refer to F-27013

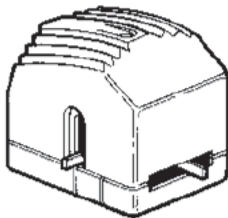
c-UL-us LISTED mark for US safety compliance per UL 60730-1 & -2-14, and Canadian compliance per CAN/CSA E60730-1 & -2-14.

CE mark EU safety compliance per EN 60730-1 & -2-14 and per directives 2014-35/EU [LVD], 2014-30/EU [EMC], and 2011/65/EU [RoHS2].

RCM mark compliance for Australian/New Zealand.

Model No.	Maximum Current/Power Requirements 24 Vac mA (VA)	Control Signal	Timeout	Timing (min:sec)	
				60 Hz	50 Hz
AT33A000	40 mA (1.0 VA)	24 Vac, 3-Wire Floating	No	Maximum 2:30	Maximum 3:00
AT33A00T	50 mA (1.2 VA)		Yes		—
AP33A000	65 mA (1.6 VA)	0-10 Vdc or 4-20 mA Field Selectable	N/A	2:30 + 15 sec. Recalibration Time	3:00 +18 sec. Recalibration Time

Erie™ APx3 ATx3 Series SR Modulating Actuators

**Connections:****Housing:****Dimensions:****Override:****Motor Type:****Install Instructions**

Terminal block

NEMA 1.

3-11/16 H x 2-3/4 W x 4-1/4 D in. (93 x 70 x 108 mm)

Manual

Stepper motor.

Refer to F-27013.

Regulatory**Compliance**

c-UL-us LISTED mark for US safety compliance per UL 60730-1 & -2-14, and Canadian compliance per CAN/CSA E60730-1 & -2-14.

CE mark EU safety compliance per EN 60730-1 & -2-14 and per directives 2014-35/EU [LVD], 2014-30/EU [EMC], and 2011/65/EU [RoHS2].

RCM mark compliance for Australian/New Zealand.

Model No.	Volts AC	Electrical Position	Maximum Current/Power (VA) (Running) ^a	Control Signal
AT13A00T	24	Closed	68 mA (1.6 VA)	24 Vac 3-Wire Floating
AT23A00T		Open		
AP13A000		Closed		0-10 Vdc 4-20 mA 0-5 Vdc 5 to 10 Vdc
AP23A000		Open ^b		

a-For transformer sizing a minimum of 10 VA per actuator is required to allow for in-rush

b-Can only be used on 2-way valve

**Modulating Spring and Non-Spring Return PopTop, Two-Way and Three-Way VM Assemblies
Flow Patterns****Piping**

- The three-way is only configured as normally closed. For normally open configuration to the coil, turn the valve around. For proportional valves, set the control action (direct or reverse accordingly).
- The valve should be used in a closed-loop system.
- All valves must be piped so the plug closes against the direction of flow. For two-way valves, flow is from port B to port A. For normally closed three-way valves, B is the service port and A is the bypass port. For normally open three-way valves, A is the service port and B is the bypass port.
- Three-way VM valves must be piped in a mixing configuration, not diverting.

CAUTION: Do not use VM series valves in "open" systems. Excess make-up water may cause damage to the valve.

Follow proper water treatment practices and system procedures. Refer to document F-26080; EN205, *Water and Steam System Guidelines*.

Note: Normally open actuators are not to be used on three-way valves to achieve normally open configurations. Use a normally closed actuator and pipe as shown in Figure-2.

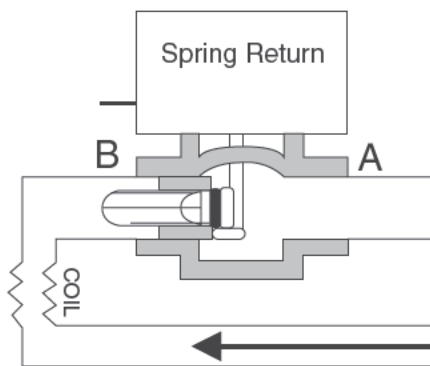


Figure 1 Two-Way Valve Normally Closed.

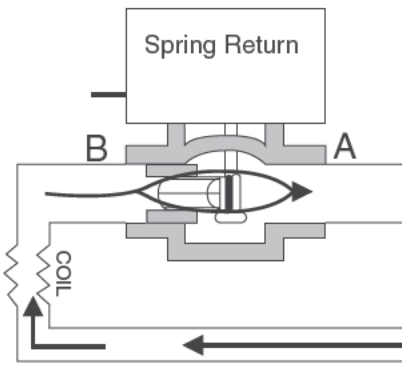


Figure 2 Two-Way Valve Normally Open.

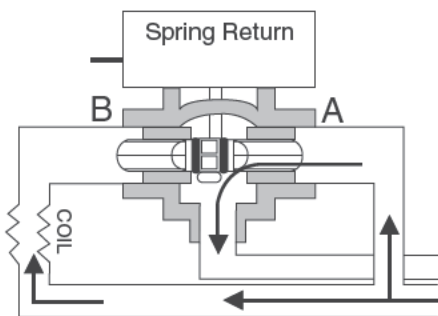


Figure 3 Three-Way Valve
B Port Piped to Coil Outlet
Normally Closed.

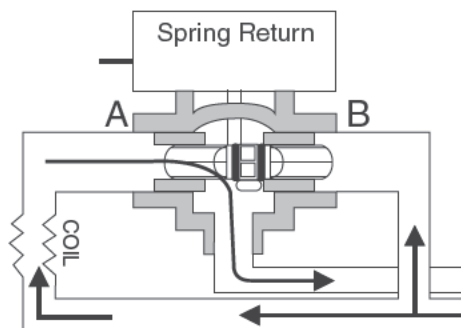


Figure 4 Three-Way Valve
A Port Piped to Coil Outlet
Normally Open

Two-Position Spring Return PopTop Two-Way and Three-Way VT/VS Assemblies Flow Patterns

The VT/VS series are two-position spring return valves. When powered, the actuator moves to the desired position, tensing the spring return system. When power is removed the actuator returns to the normal position.

The VT/VS series two-position spring return valves can be purchased with an optional built-in auxiliary SPDT end switch for interfacing or signaling; for example, zone pump burner control.

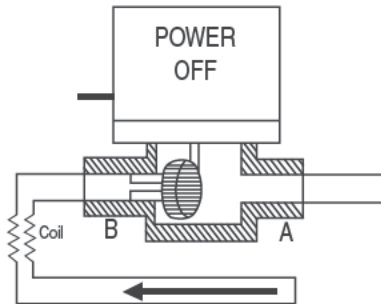


Figure 5 Two-Way Valve with Normally Closed Actuator.

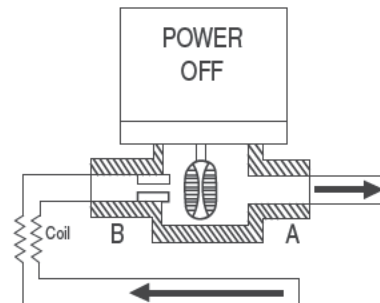


Figure 6 Two-Way Valve with Normally Open Actuator.

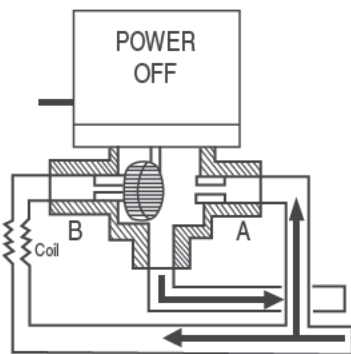


Figure 7 Three-Way Valve in Mixing Configuration Normally Closed to the Coil.

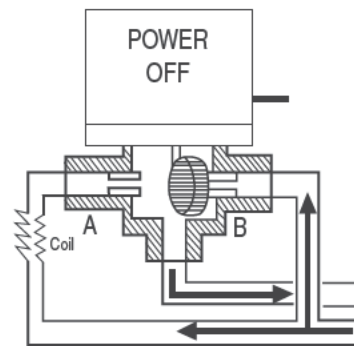


Figure 8 Three-Way Valve in Mixing Configuration Normally Open to the Coil.

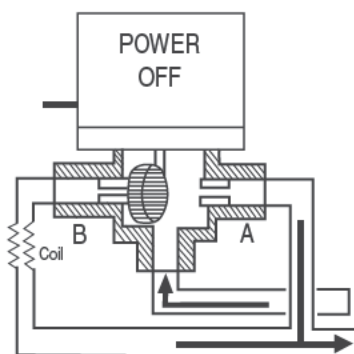


Figure 9 Three-Way Valve in Diverting Configuration Normally Closed to the Coil.

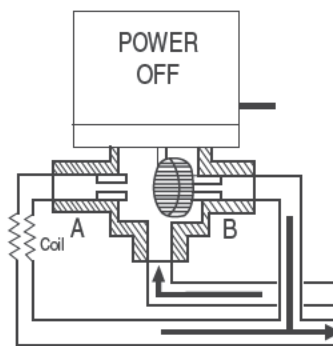


Figure 10 Three-Way Valve in Diverting Configuration Normally Open to the Coil.