

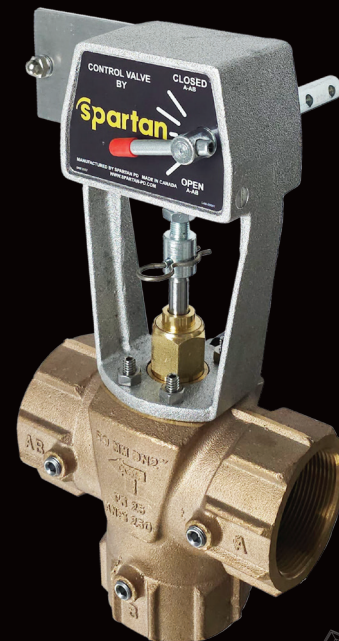
2025

SELECTION GUIDE

TERMINAL UNIT ZONE AND SYSTEM VALVES

A broad selection of inlet and outlet configurations and choice of sizes.

MODULAR CONCEPT
1
2
3



(866) 424-6067
sales@spartan-pd.com
www.spartan-pd.com

YOUR COMPLETE VALVE SOLUTION

Spartan Peripheral Devices has specialized in the manufacturing of Globe valves and actuators since 1984, establishing ourselves as experts in the field.

This comprehensive guide is designed to assist you in selecting the most suitable valve for your specific application.

We offer a wide range of valves to cater to diverse flow requirements:

- Zone Valves (0.5 Cv to 9.0 Cv) are ideal for applications with smaller flow rates.
- System Valves (6 Cv to 190 Cv) are designed to handle larger flow rates.

We understand that control requirements vary significantly depending on the application. Therefore, we offer a comprehensive range of control options to ensure seamless integration with your existing system.

Our control options include:

Zone Valves - V200 - V300 Series

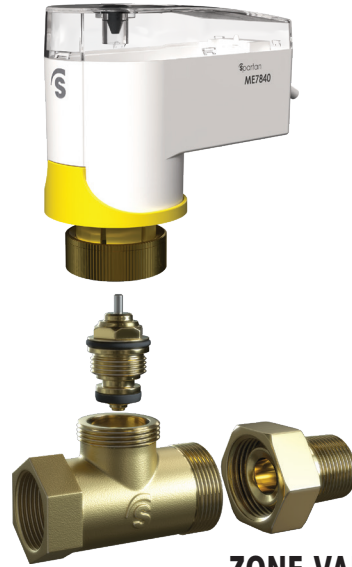
- Pneumatic
- Electric
- Thermoelectric
- Thermostatic
- Wireless

System Valves - V411 - V431 Series

- Electric
- Pneumatic (Not Covered in this Guide)

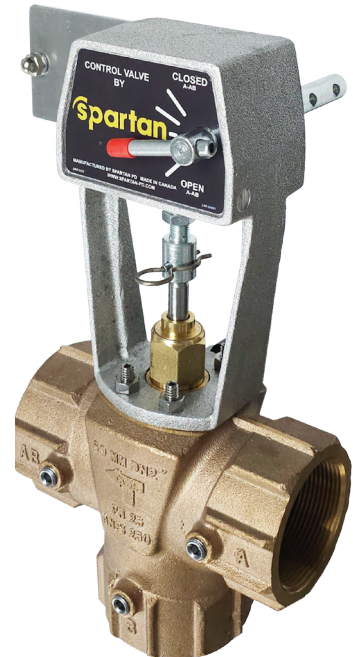
All our valves, ranging in size from ½ inch to 4 inches, are designed and assembled in-house, ensuring superior quality and reliability.

Spartan understands the needs of the HVAC industry and maintains a large inventory of valves and compatible products to meet those needs. We don't believe in the "Just In Time" concept; our goal is to ensure that our products are readily available and easily serviceable and upgradable.



ISO9001-2015

ZONE VALVE SOLUTIONS V200 - V300 Series



SYSTEM VALVE SOLUTIONS V411 - V431 Series

CHOOSE A VALVE	page 3
ZONE VALVES	pages 4-8
SYSTEM VALVES	pages 9-13
REFERENCES	pages 14-15

ALSO AVAILABLE

CALL 1-866-424-6067

Pneumatic System Valve

Thermostat



VP SERIES

SPECIFY
2 way / 3 way
Size
Pressure Range
Pilot Position

TE SERIES

SPECIFY
Digital
Analog
Schedule
ECM Fan



SELECTION GUIDE

SPARTAN VALVE ASSESSMENT TABLE

Common Choices (Not Limited To)			Requirement
	Application	Heating - Cooling - Glycol - Steam Ice Machine - Fish Feeding - Potable	
BODY	1 What Size?	1/2", 3/4", 1", 1-1/2", 2", 3", 4", Other	
	2 Way Or 3 Way?	2 Way, 3 Way - Mixing Or Diverting	
	Type Of Connection? (Selection Guide)	NPTF X NPT Union - NPTF X NPTF Double Union - Flared - Flat Face - Flange	
FLOW	2 Flow Requirement	Gpm - L/m - L/s	
	Cv	Flow Coefficient If Available Or Δp Pressure Drop	
ACTUATION	3 Type Of Control?	Fail In Place - Fail Last Position Fail Safe (Return) - Fail Open/Closed	
	Electric Thermoelectric	Voltage 24VAC (DC) - 120VAC On-Off (Floating) Modulating 0-10 / 2-10 (Signal) End Switch	
	Pneumatic	Pneumatic (Pressure Range) 3-6 / 8-12 / 5-11 PSI	
	Thermostatic	On Valve Remote Bulb Remote Adjustment	
Fail Safe - Spring Return Electric Return	2 Way	NORMALLY OPEN or NORMALLY CLOSED	
	3 Way	NORMALLY OPEN A-AB (DIVERTING AB-A) NORMALLY OPEN B-AB (DIVERTING AB-B)	
	Retrofit	Model # - Dimensions - Pictures- Datasheets	

Notes (Expected Delivery)

CHOOSE A VALVE

3

STEP 1 SELECT THE VALVE BODY TO BEST SUIT YOUR PIPING APPLICATIONS AND CHOOSE FROM MANY CONNECTION TYPES

Spartan Peripheral Devices 2 way V200 series and 3 way V300 series globe control valve bodies are available in a wide range of styles and connection types. These valve bodies are common to the complete line of Spartan Terminal Unit actuators (wireless, electric, electronic, pneumatic and

thermostatic) and are easily interchangeable with a thumb nut. The commercial application globe valve bodies utilize low zinc anti dezincification bronze. All valve bodies are globe type rated ANSI 250 (PN 25).



GENERAL SPECIFICATIONS FOR ALL VALVE BODIES

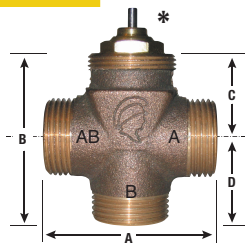
BODY MATERIAL	Low zinc bronze, alloy C84400
PRESSURE RATING	ANSI 250 (400 PSI to 150°F (66°C), 250 PSI to 250°F (120°C))
MAX. TEST PRESSURE	1200 PSI (81 bar)
MAX. DIFFERENTIAL P	50 PSI (3.5 bar) can be exceeded but with possible water noise

VALVE STEM	«Mirror – maker» burnished stainless steel stems
RANGEABILITY	See Internal Cartridge Specification table, on page 4
STEM TRAVEL	5/32" (4mm)
STEM POSITION	UP = valve open, DOWN = valve closed

3 WAY CONTROL VALVE BODIES

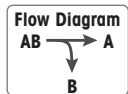
V300 SERIES

V320



1/2" or 3/4", 3 Way Diverting Valve Body. Conical Unions on all 3 ports

V320	A	B	C	D
	2.24 (56,90)	2.24 (56,90)	1.09 (27,69)	1.09 (27,69)



Stem UP flow AB to A (default position),

Stem DOWN flow AB to B

Select to include:

V320-12N for 1/2" threaded unions

V320-12S for 1/2" sweat unions (for 5/8" copper pipe)

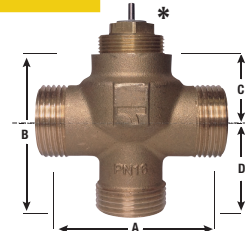
V320-34N for 3/4" threaded unions

V320-34S for 3/4" sweat unions (for 7/8" copper pipe)

Select CV from cartridge type ED

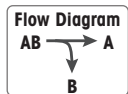


V345



3/4" or 1", 3 Way Diverting Valve Body. Conical Unions on all 3 ports

V345	A	B	C	D
	3.25 83	3.00 76	1.50 38	1.50 38



Stem UP flow AB to A (default position),

Stem DOWN flow AB to B

Select to include:

V345-34N for 3/4" threaded unions

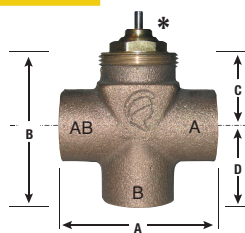
V345-34S for 3/4" sweat unions (for 7/8" copper pipe)

V345-10N for 1" threaded unions

Replacement cartridge V345PKG-5.5

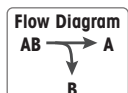


V325



1/2" or 3/4", 3 Way Diverting Valve Body. Direct Sweat

1/2" Valve	A	B	C	D
V325-12	2.24 (56,90)	2.21 (56,13)	1.09 (27,69)	1.12 (28,45)
3/4" Valve	A	B	C	D
V325-34	2.24 (56,90)	3.32 (84,30)	1.09 (25,00)	2.23 (56,64)



Stem UP flow AB to A (default position),

Stem DOWN flow AB to B

Select to include:

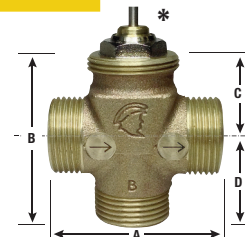
V325-12S for 1/2" sweat (for 5/8" (16mm) OD copper pipe)

V325-34S for 3/4" sweat (for 7/8" (22mm) OD copper pipe)

Select CV from cartridge type ED

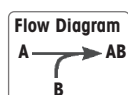


V321



1/2" or 3/4", 3 Way Mixing Valve Body. Conical Unions on all 3 ports

A	B	C	D
2.24 (56,90)	2.24 (56,90)	1.09 (27,69)	1.09 (27,69)



Stem UP flow B to AB (default position),

Stem DOWN flow A to AB

Select to include:

V321-12N for 1/2" threaded unions

V321-12S for 1/2" sweat unions (for 5/8" copper pipe)

V321-34N for 3/4" threaded unions

V321-34S for 3/4" sweat unions (for 7/8" copper pipe)

Select CV from cartridge type EX



3 WAY DIVERTING

*Shown cartridge not included, must be chosen on page 6

3 WAY MIXING

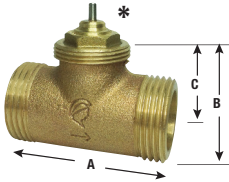
ZONE VALVES

2 WAY GLOBE CONTROL VALVE BODIES

V200 SERIES

2 WAY

V240FLT



Straight Flat Face Male NPT Union Connections on Both Ports, 1/2", 3/4" or 1"

Part No.	Used with union nut	A	B	C
1/2" Valve V24020FLT	3/4" BSPP	2 1/4" (57,2)	1 1/8" (39,7)	1 1/8" (27,0)
3/4" Valve V24025FLT	1" BSPP	2 1/2" (63,5)	2 1/8" (54,0)	1 1/8" (36,5)
1" Valve V24032FLT	1 1/2" BSPP	3 1/2" (88,9)	2 3/8" (60,3)	1 1/2" (38,1)
1" Valve** VN24025FLT	1" BSPP	2 1/2" (63,5)	2 1/8" (57,2)	1 1/8" (28,6)

** Potable Water Compliant Alloy C87850

STEM UP OPEN (DEFAULT POSITION)

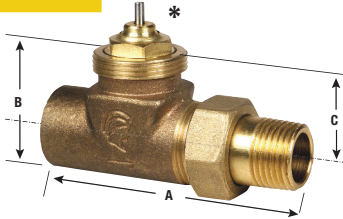
Select to include:

V24020-12N for 1/2" threaded unions
V24020-12S for 1/2" sweat unions (for 3/8" copper pipe)
V24025-34N for 3/4" threaded unions
V24025-34S for 3/4" sweat unions (for 7/8" copper pipe)
V24032-10N for 1" threaded unions
V24032-10S for 1" sweat unions (for 1 1/8" copper pipe)
Select CV from cartridge type EP, EB, EV or BC

For more info VN24025FLT consult QR code



V241



Straight Female NPT Port In & NPT Male Union Out, 1/2", 3/4" or 1"

	A	B	C
1/2" Valve V241-12	3.34 (84,84)	1.76 (44,70)	1.09 (27,69)
3/4" Valve V241-34	3.90 (99,06)	2.20 (55,88)	1.09 (27,69)
1" Valve V241-10	5.44 (138,00)	2.50 (63,50)	1.24 (31,50)

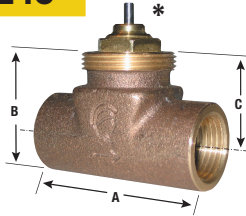
STEM UP OPEN (DEFAULT POSITION)

Select to include:

V241-12N for 1/2" threaded union
V241-34N for 3/4" threaded union
V241-10N for 1" threaded union
Select CV from cartridge type EP, EB, EV or BC



V243



Straight Female NPT Ports In and Out, 1/2", 3/4" or 1"

	A	B	C
1/2" Valve V243-12	2.29 (58,17)	1.60 (40,64)	1.09 (27,69)
3/4" Valve V243-34	2.70 (68,58)	2.20 (55,88)	1.09 (27,69)
1" Valve V243-10	3.88 (98,50)	2.84 (71,10)	1.80 (45,70)

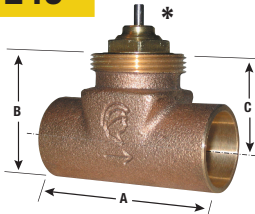
STEM UP OPEN (DEFAULT POSITION)

Select to include:

V243-12N 1/2" Valve Body
V243-34N 3/4" Valve Body
V243-10N 1" Valve Body
Select CV from cartridge type EP, EB, EV or BC



V245



Straight Direct Sweat Connections, 1/2" or 3/4"

	A	B	C
1/2" Valve (16mm) V245-12	2.24 (56,90)	1.60 (40,64)	1.09 (27,69)
3/4" Valve (22mm) V245-34	2.29 (58,17)	1.60 (40,64)	1.09 (27,69)

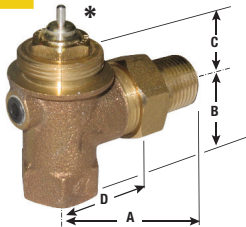
STEM UP OPEN (DEFAULT POSITION)

Select to include:

V245-12S 1/2" Valve Body (for 5/8" copper pipe)
V245-34S 3/4" Valve Body (for 7/8" copper pipe)
Select CV from cartridge type EP, EB, EV or BC



V261



Angle Female NPT In & Male NPT Union Out, 1/2", 3/4" or 1"

	A	B	C	D
1/2" Valve V261-12	2.25 (58,00)	1.13 (29,00)	1.13 (29,00)	1.25 (32,00)
3/4" Valve V261-34	2.68 (67,00)	1.13 (30,00)	0.75 (19,00)	1.138 (36,00)
1" Valve V261-10	3.15 (80,00)	1.50 (38,00)	2.37 (60,00)	1.65 (42,00)

STEM UP OPEN (DEFAULT POSITION)

Select to include:

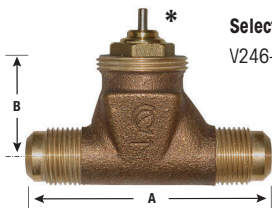
V261-12N for 1/2" Valve Size
V261-34N for 3/4" Valve Size
V261-10N for 1" Valve Size
Select CV from cartridge type EP, EB, EV or BC



V246-12F

1/2", Flared Male SAE 45° union

Selection :
V246-12F for 1/2" union



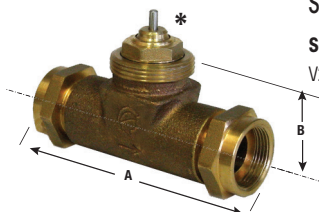
A	B
Flared Male V246-12F	
3.125 (79,00)	1.32 (33,53)



V243-12i

1/2", Flared Female SAE 45° union

Selection :
V243-12i for 1/2" union



A	B
Flared Female V243-12i	
3.125 (79,00)	1.32 (33,53)



*Shown cartridge not included, must be chosen on page 6

STEP **2**

Select the valve cartridge type and CV value to best suit your application such as hot and chilled water, low pressure steam or high close-off pressures.

INTERNAL CARTRIDGES - FIELD REPLACEABLE & INTERCHANGEABLE

All Spartan valve body assemblies are service/maintenance free with interchangeable internals (in the form of a replaceable cartridge) for specific applications with variations of equal percentage parabolic or linear characterized globe plungers. CV (KV) values can be changed without having to remove the valve from the line simply by changing the cartridge.

TOP
VIEW



2 WAY

STANDARD CLOSE OFF CARTRIDGES



Used for hot and chilled water.

Valve
Body

CVs

EP

Valve Body	CVs									
1/2"	0.5	1.0	1.5	2.0	2.5	3.0	3.5	-		
3/4"	-	1.0	1.5	2.0	2.5	3.0	3.5	4.5		



Used for hot and chilled water.

Valve
Body

CVs

BC

Valve Body	CVs									
1/2"	0.15	0.25	0.50							
3/4"	-	1.0	1.5							

HIGH CLOSE OFF CARTRIDGES



1/2" & 3/4"
valve cartridge



1"
valve cartridge



Balanced cartridge used for high close-off pressure applications (up to 100 psi) for hot and chilled water.

Valve Body

CVs

EB

Valve Body	CVs																			
1/2"	0.5	1.0	1.5	2.0	2.5	3.0	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-
3/4"	-	1.0	1.5	2.0	2.5	3.0	3.5	4.5	-	-	-	-	-	-	-	-	-	-	-	-
1"	-	-	-	-	-	-	-	-	-	-	-	-	6.0	6.4	8.0	9.0				

The EB cartridge is recommended for use on certain spring return actuators. See note on page 5.

15PSI STEAM CARTRIDGES



1/2" & 3/4"
valve cartridge



1"
valve cartridge



(for 2 way valve body) Used for low pressure up to 15PSI steam applications recognizable by nickel plated cap.

Valve
Body

CVs

EV

Valve Body	CVs																			
1/2"	0.5	1.0	1.5	2.0	2.5	3.0	3.5	-	-	-										
3/4"	-	1.0	1.5	2.0	2.5	3.0	3.5	4.5	-	-										
1"	-	-	-	-	-	-	-	-	-	6.4	9.0									

THE SPARTAN ADVANTAGE

- Internals are equipped with 1 1/2 million cycles (3 million repositions)
- Burnished mirror finish stainless steel stems
- Micro machined accurate parabolic characterized plugs
- Compatible with Ethylene/Propylene Glycol

3 WAY

DIVERTING & MIXING CARTRIDGES



Used for 3 way **DIVERTING** V320, V323, V325 valve bodies for hot and chilled water.

Valve
Body

CVs

ED

Valve Body	CVs				
1/2"	1.0	2.0	3.0		
3/4"	1.0	2.0	3.0		



Used for 3 way **MIXING** V321 valve bodies for hot and chilled water.

Valve
Body

CVs

EX

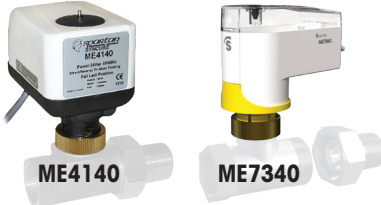
Valve Body	CVs				
1/2"	1.0	2.0	3.0		
3/4"	1.0	2.0	3.0		

SELECTION GUIDE

STEP 3

Select the valve actuator to best suit your control signal, voltage application, spring return or FLP requirements.

TERMINAL UNIT ACTUATORS



ELECTRIC - FAIL LAST POSITION

MODEL	SIGNAL	VOLT	FEATURES
ME4140	Floating	24Vac	End of travel switch-off, complete shutdown Standard clear cover. Optional white cover.
ME7340	Modulating	24Vac	Selectable 0-10Vdc, 2-10Vdc. Feedback 1-5 Vdc



ELECTRIC - FAIL SAFE

ME4430W	ON-OFF	24Vac	N.O. (Normally open)
ME4430S	ON-OFF	24Vac	N.O. with SPDT auxiliary switch
ME4431W	ON-OFF	110Vac	N.O.
ME4431S	ON-OFF	110Vac	N.O. with SPDT auxiliary switch
ME4530W	ON-OFF	24Vac	N.C. (Normally closed)
ME4530S	ON-OFF	24Vac	N.C. with SPDT auxiliary switch
ME4531W	ON-OFF	110Vac	N.C.
ME4531S	ON-OFF	110Vac	N.C. with SPDT auxiliary switch
ME7840	Modulating	24Vac	N.O. Selectable 0-10Vdc, 2-10Vdc. Feedback 1-5 Vdc
ME7940	Modulating	24Vac	N.C. Selectable 0-10Vdc, 2-10Vdc. Feedback 1-5 Vdc

WIRELESS ACTUATORS

ME83XXV2	Modulating 24Vac FLP, operates on EnOcean protocol, 902 MHz USA, 868 MHz Europe
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THERMO-ELECTRIC ACTUATORS - FAIL SAFE

ME1608	ON/OFF or PWM	24Vac / DC	N.O. (Normally open)
ME1708	ON/OFF or PWM	24Vac / DC	N.C. (Normally closed)
ME1708S	ON/OFF or PWM	24Vac	N.C. (Normally closed) with SPST auxiliary switch

PNEUMATIC ACTUATORS

MP5100	On-Off Modulating	3-6#	N.O. (Normally Open)
MP5300	On-Off Modulating	8-12#	N.O. (Normally Open)
MP5400	On-Off Modulating	5-11#	N.O. (Normally Open)

THERMOSTATIC ACTUATORS

OT1100	Valve mounted self-acting thermostatic actuator 40-80°F (6-26°C)
OT2100/2115	Remote bulb self-acting thermostatic actuator with 6.5/16.5ft capillary 40-80°F (6-26°C)
OT5100	Remote bulb wall-mounted self-acting thermostatic actuator with 6.5ft capillary 40-80°F (6-26°C)

MANUAL ACTUATOR

MK2100	Manual Actuator 0.040"/1mm per turn M30 X 1.5mm
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TERMINAL UNIT NOMENCLATURE

STEP 1 Choose a valve body					STEP 2 Choose a cartridge			STEP 3 Choose an actuator		
V	E	243	-	12	N	-	EP	1.0	-	7340

◆ The EB cartridge is recommended when using these actuators

Actuator Type: ME7340

Cv Value: Cv1.0

Cartridge Type: EP

Union Type - N = NPT, B = BSPT, S = Sweat

Valve Size: 1/2"

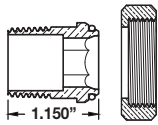
Valve Body Type - select from connection type

Valve Assembly Type - Select E for Electric, P for Pneumatic, or T for Thermostatic

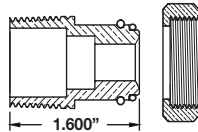
TERMINAL UNIT ACCESSORIES

1/2" Tapered Unions

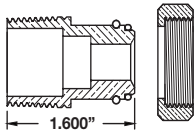
Used with V241-12, V261-12, V320-20, V321 Valve Bodies. Union nut fits on 3/4" BSPP threads



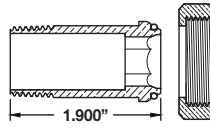
AV6112 - 1/2" NPT Union, 1" nominal length nipple



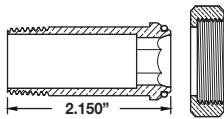
AV6134 - 1/2" Union with 1 1/2" nominal length. Step up 3/4" NPT nipple



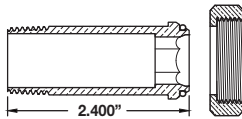
AV6112D - 1/2" NPT Union, 1 1/2" nominal length nipple



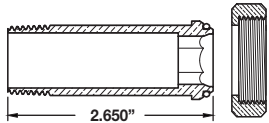
AV6112E - 1/2" NPT Union, 1 3/4" nominal length nipple



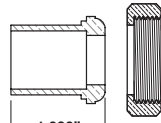
AV6112F - 1/2" NPT Union, 2" nominal length nipple



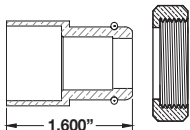
AV6112G - 1/2" NPT Union, 2 1/4" nominal length nipple



AV6112H - 1/2" NPT Union 2 1/2" nominal length nipple



AV6312 - 1/2" sweat union for 5/8" (16mm) OD copper pipe (for 1/2" valves)



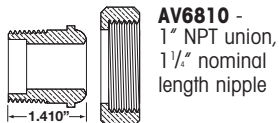
AV6334 - 3/4" sweat union step up for 3/4" (22mm) OD copper pipe (for 1/2" valves)



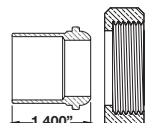
AV199-13 - Pack of 10 "O" rings for 1/2" unions (3/4" BSPP thread)

1" Tapered Unions

Used with V241-10, V261-10, V345-10 Valve Bodies. Union nut fits on 1 1/4" BSPP threads



AV6810 - 1" NPT union, 1 1/2" nominal length nipple



AV6810S - 1" Sweat union

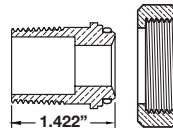
Manual Actuator



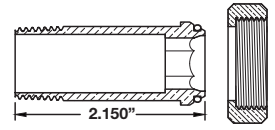
MK2100 - 0.040"/1mm per turn
M30x1.5mm

3/4" Tapered Unions

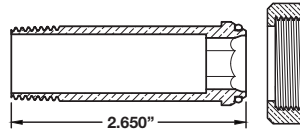
Used with V241-34, V261-34, V345-34 Valve Bodies. Union nut fits on 1" BSPP threads



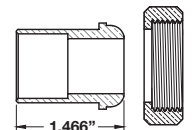
AV6534 - 3/4" NPT Union, 1 1/2" nominal length nipple



AV6534F - 3/4" NPT Union, 2" nominal length nipple



AV6534H - 3/4" NPT Union, 2 1/2" nominal length nipple

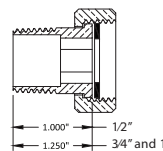


AV6534S - 3/4" Sweat Union



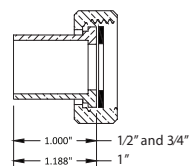
AV199-08 - Pack of 10 "O" rings for 3/4" union (1" BSPP thread)

Flat Unions with washers for valve body V240FLT



NPT thread

1/2" - **AV6112FLT** (for valve body V24020FLT)
3/4" - **AV6534FLT** (for valve body V24025FLT)
1" - **AV6810FLT** (for valve body V24032FLT)



Sweat

1/2" - **AV6312SFLT** (for valve body V24020FLT)
3/4" - **AV6534SFLT** (for valve body V24025FLT)
1" - **AV6810SFLT** (for valve body V24032FLT)



AVP20 - (1/2", 3/4"), **AVP116** (1"). Cap plug to replace any valve cartridge when **pipe flushing**.

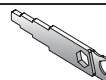


AV199-03 - (1/2", 3/4"), **AV199-14** (1") Pack of 10 "O" rings for internal cartridges for valve bodies



AVK100 - Union Selection Kit. Consisting of different size and length unions

Installation Tools



AV08 - Spud Tool for union nipple installation 1/2", 3/4" and 1" valve bodies

SYSTEM VALVES SELECTION

These complete valve assemblies are designed for long-lasting performance and precise control in both 3-way and 2-way (angle or straight) applications.

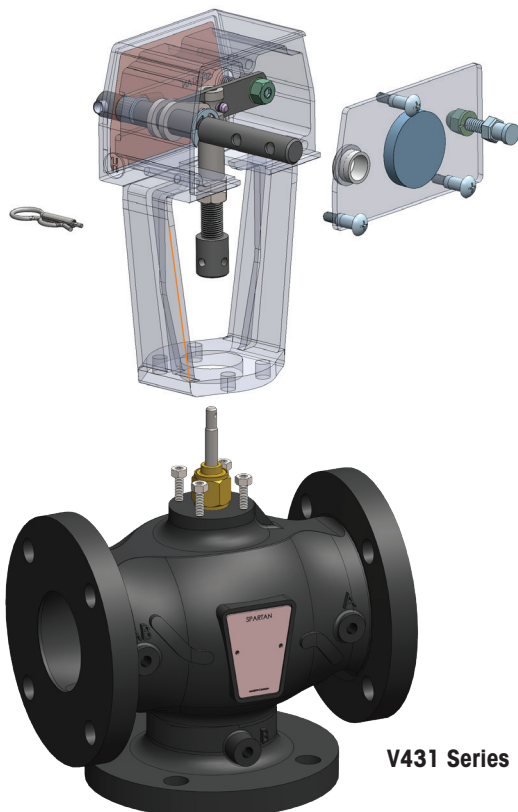
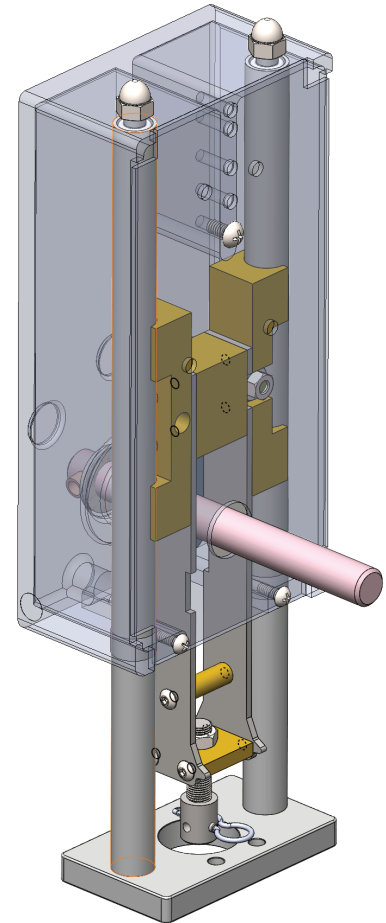
Key Features:

- **Durable Construction:** Anti-dezincification bronze components (V411) and a heavy-duty valve body ensure lasting reliability.
- **Precise Control:** A unique variable ratio, all-metal cast linkage system provides improved modulation and superior close-off force.
- **Versatile Configuration:** Available in NPT/ANSI (American) and BSPT/DIN (European) standards.
- **Extended Service Life:** 1.5 million cycle U-cup packing cartridge minimizes maintenance needs.
- **Enhanced Performance:** Stem scrubber rings, guided stem, and parabolic/fluted plugs optimize operation.
- **Troubleshooting Aid:** "A port" pointer simplifies troubleshooting.
- **Customization Options:** Tapped ports allow for optional P plugs.

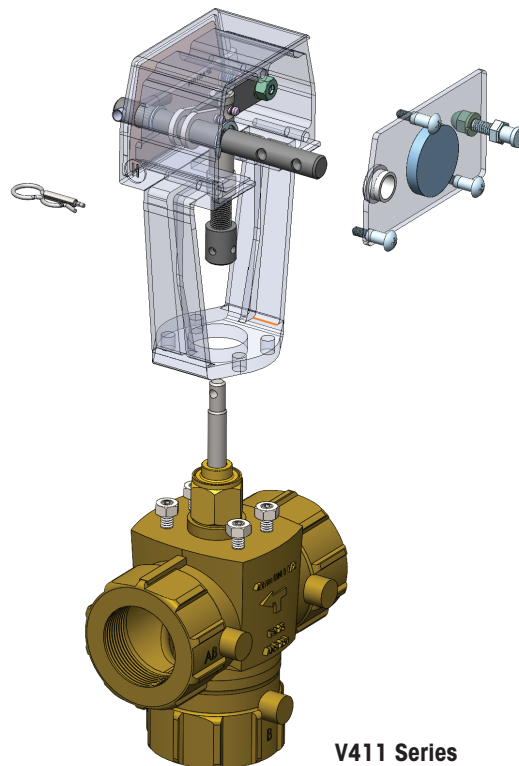
Additional Benefits:

- Maintenance-free design
- High and low Cv/Kvs options for each size

APPLICATION - Primarily designed for use on closed systems, these valves can nonetheless be used in many other applications. Dezincification resistant, they can be used in most HVAC control systems as well as industrial applications. These universal valve bodies are suitable for use as 2-way straight or 2 way angle valves with optional plug-in kit to the bottom port B, or a side port A. Also suitable for use as a 3 way valve in hot or cold water systems, and with a static pressure rating suitable to 400 psi., (ANSI 250) for 1", 1 1/2" & 2", and 170psi (ANSI 125) for 3" and 4" sizes. They adapt to low or high rise installations. These valves are designed as mixing valves in their 3-way format. The water must always mix within the body with the common port as an outlet, even though it can divert through or around the load.



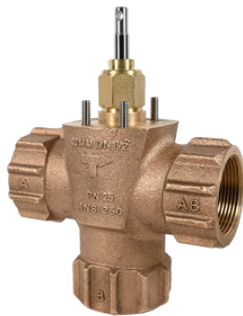
V431 Series



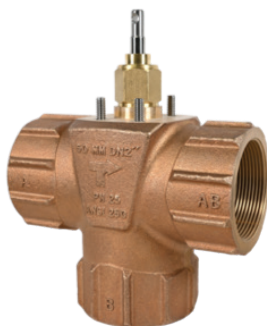
V411 Series



SIZE	Cv	Close-Off (PSI)	FAIL SAFE	CONTROL SIGNAL TYPE	
				0-10 VDC MODULATING	ON-OFF TWO POSITION
1"	6	35	FS	VE411-6-I-5820	VE411-6-I-5420
	6	100	FS	VE411-6-I-5830	VE411-6-I-5430
	11	35	FS	VE411-11-I-5820	VE411-11-I-5420
	11	100	FS	VE411-11-I-5830	VE411-11-I-5430
				0-10 VDC MODULATING	FLOATING
	6	100	FLP	VE411-6-I-5320	VE411-6-I-5120
	6	100	FLP	VE411-11-I-5320	VE411-11-I-5120



SIZE	Cv	Close-Off (PSI)	FAIL SAFE	CONTROL SIGNAL TYPE	
				0-10 VDC MODULATING	ON-OFF TWO POSITION
1.5"	16	70	FS	VE411-16-I-5830	VE411-16-I-5430
	16	125	FS	VE411-16-I-5840	VE411-16-I-5440
	24	70	FS	VE411-24-I-5830	VE411-24-I-5430
	24	125	FS	VE411-24-I-5840	VE411-24-I-5440
				0-10 VDC MODULATING	FLOATING
	16	66	FLP	VE411-16-I-5320	VE411-16-I-5120
	16	100	FLP	VE411-16-I-5330	VE411-16-I-5130
	24	66	FLP	VE411-24-I-5320	VE411-24-I-5120
	24	100	FLP	VE411-24-I-5330	VE411-24-I-5130



SIZE	Cv	Close-Off (PSI)	FAIL SAFE	CONTROL SIGNAL TYPE	
				0-10 VDC MODULATING	ON-OFF TWO POSITION
2"	35	52	FS	VE411-35-I-5830	VE411-35-I-5430
	35	100	FS	VE411-35-I-5840	VE411-35-I-5440
	45	35	FS	VE411-45-H-5830	VE411-45-H-5430
	45	80	FS	VE411-45-H-5840	VE411-45-H-5440
				0-10 VDC MODULATING	FLOATING
	35	37	FLP	VE411-35-I-5320	VE411-35-I-5120
	35	70	FLP	VE411-35-I-5330	VE411-35-I-5130
	35	100	FLP	VE411-35-I-5340	VE411-35-I-5140
	45	45	FLP	VE411-45-H-5330	VE411-45-H-5130
	45	70	FLP	VE411-45-H-5340	VE411-45-H-5140

NOMENCLATURE 2 WAY

VE	431	(2)	-	65	-	I	-	5440
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ACTUATOR TYPE

LINKAGE TYPE

Cv - FLOW COEFFICIENT

2 WAY VALVE ASSEMBLY

411 = NPT, 431 = FLANGE

VE = ELECTRIC VALVE

SELECTION GUIDE

FLANGED - UNIVERSAL 2/3 WAY

V431 SERIES



SIZE	Cv	Close-Off (PSI)	FAIL MODE	CONTROL SIGNAL	
				0-10 VDC MODULATING	ON-OFF TWO POSITION
3"	65	30	RETURN	VE431-65-I-5830	VE431-65-I-5430
	65	55	RETURN	VE431-65-I-5840	VE431-65-I-5440
	65	100	RETURN	VE431-65-Q-5850-ON	VE431-65-Q-5850-ON
	75	25	RETURN	VE431-75-H-5830	VE431-75-H-5430
	75	40	RETURN	VE431-75-H-5840	VE431-75-H-5440
	75	100	RETURN	VE431-75-Q-5850-ON	VE431-75-Q-5850-ON
	110	25	RETURN	VE431-110-K-5840	VE431-110-K-5440
	110	75	RETURN	VE431-110-K-5850-ON	VE431-110-K-5850-ON
				0-10 VDC MODULATING	FLOATING
	65	30	FLP	VE431-65-I-5330	VE431-65-I-5130
	65	55	FLP	VE431-65-I-5340	VE431-65-I-5140
	65	55	FLP	VE431-65-I-5340L	VE431-65-I-5140L
	75	25	FLP	VE431-75-H-5340	VE431-75-H-5140
	75	85	FLP	VE431-75-Q-5350	VE431-75-Q-5150
	75	90	FLP	VE431-75-I-5340L	VE431-75-I-5140L
	110	40	FLP	VE431-110-K-5340L	VE431-110-K-5140L
	110	65	FLP	VE431-110-K-5350	VE431-110-K-5150



SIZE	Cv	Close-Off (PSI)	FAIL SAFE	CONTROL SIGNAL	
				0-10 VDC MODULATING	ON-OFF TWO POSITION
4"	190	40	RETURN	VE431-190-Y-5850-ON	VE431-190-Y-5850-ON
				0-10 VDC MODULATING	FLOATING
	190	30	FLP	VE431-190-Y-5350	VE431-190-Y-5150
	190	40	FLP	VE431-190-Y-5350-ON	VE431-190-Y-5150-ON

NOMENCLATURE 3 WAY



ON THREE WAY FAILSAFE VALVE
SPECIFY THE FLOW CONFIGURATION

MIXING		
	N.O. A-AB	DEFAULT
OR	N.O. B-AB	
DIVERTING		
	N.O. AB-A	DEFAULT
OR	N.O. AB-B	

VE 431 - 65 - I - 5440

D

ACTUATOR TYPE

LINKAGE TYPE

Cv - FLOW COEFFICIENT

DEFAULT=BLANK=MIXING / OPTIONAL "D" = DIVERTING (ON-OFF ONLY)

411 = NPT, 431 = FLANGE

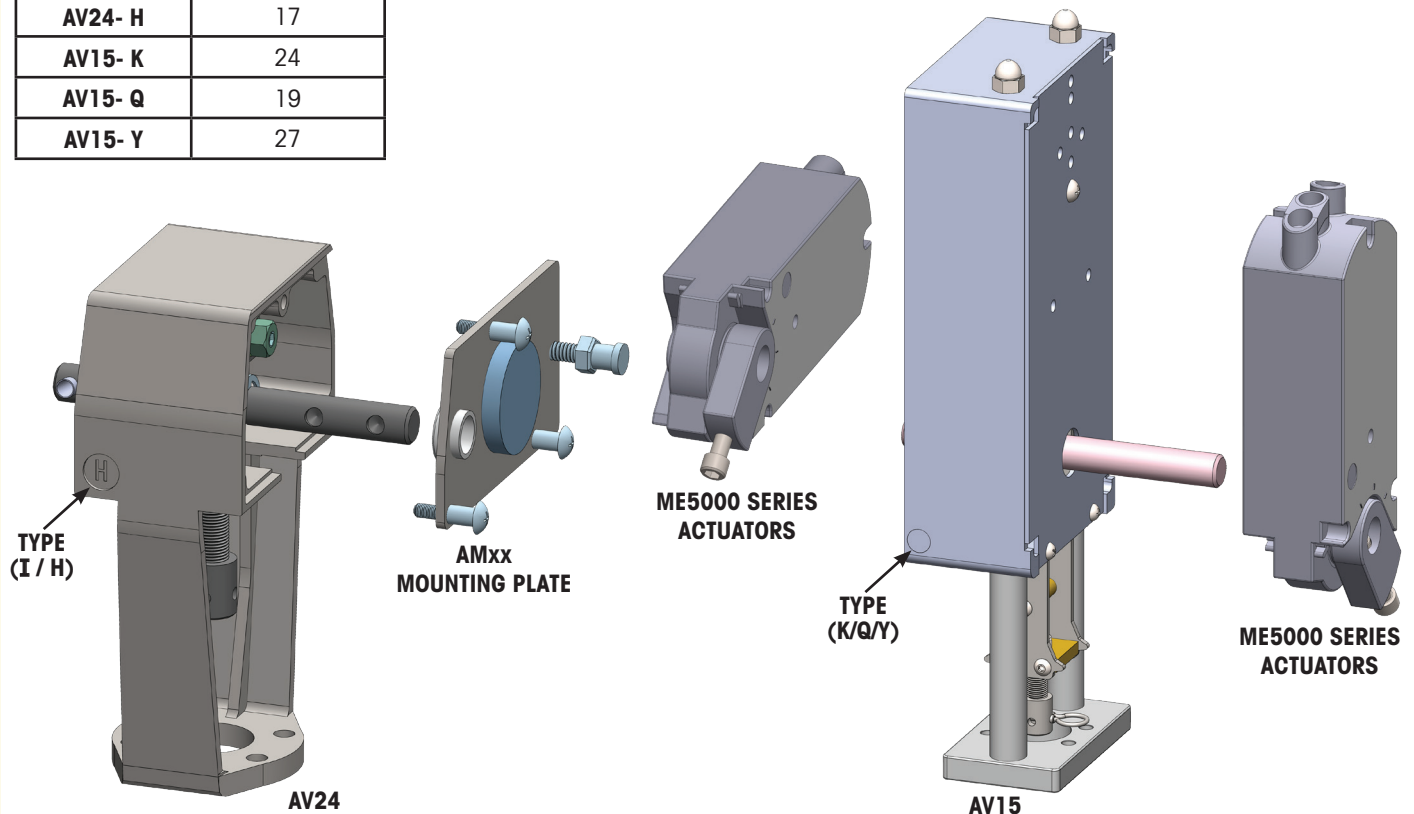
VE = ELECTRIC VALVE

TERMINAL UNIT ACTUATORS ELECTRIC SERIES ME5000 AND RELATED LINKAGES

SPRING RETURN ACTUATOR (FAIL SAFE)				LINKAGE				
TWO POSITION	MODULATING		TORQUE	I	H	K	Q	Y
ME5420	ME5820	2-10	20lb.in - 2Nm	AV24I-AM19	AV24H-AM19	-	-	-
ME5430	ME5830	0-10	62lb.in - 7Nm	AV24I-AM10	AV24H-AM10	-	-	-
ME5440	ME5840	0-10	160lb.in - 16Nm	AV24I-AM09	AV24H-AM09	-	-	-
ME5850-ON	ME5850-ON	0/2-10 4-20	360lb.in - 40Nm	-	-	AV15K	AV15Q	AV15Y

NON SPRING RETURN ACTUATOR (FLP)				LINKAGE				
FLOATING	MODULATING		TORQUE	I	H	K	Q	Y
ME5120	ME5320	0-10	44lb.in - 5Nm	AV24I-AM01	-	-	-	-
ME5130	ME5330	0-10	88lb.in - 10Nm	AV24I-AM01	AV24H-AM01	-	-	-
ME5140	ME5340	0-10	132lb.in - 15Nm	AV24I-AM10	AV24H-AM10	-	-	-
ME5140L	ME5340L	0-10	221lb.in - 25Nm	AV24I-AM09	AV24H-AM09	-	-	-
ME5150	ME5350	0-10	310lb.in - 35Nm	-	-	AV15K	AV15Q	AV15Y
ME5150-ON	ME5350-ON	0/2-10 4-20	360lb.in - 40Nm	-	-	-	-	AV15Y

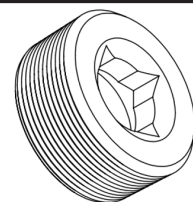
LINKAGE TYPE	TRAVEL (mm)
AV24-I	14
AV24- H	17
AV15- K	24
AV15- Q	19
AV15- Y	27



SYSTEM VALVE ACCESSORIES

PART# 2 WAY NPT PLUG

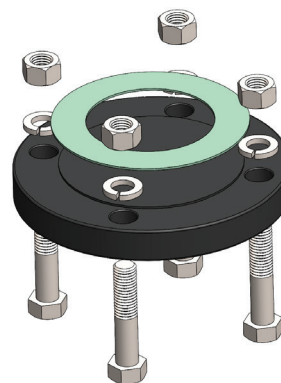
AV411N10	2 way PLUG 1" NPT - Carbon Steel	A
AV411N15	2 way PLUG 1.5" NPT - Carbon Steel	
AV411N20	2 way PLUG 2" NPT - Carbon Steel	



A

PART# 2 WAY ANSI FLANGE KIT

AV431AK3	2 way ANSI Flange Kit 3" with Gasket and 4 Bolts Kit	B
AV431AK4	2 way ANSI Flange Kit 4" with Gasket and 8 Bolts Kit	



B

PART# RING GASKETS

AV431G30	Ring Gasket 3" - Non-Asbestos - No Bolt Holes	C
AV431G40	Ring Gasket 4" - Non-Asbestos - No Bolt Holes	



C

PART# PROTECTIVE COVER

AM4F	Robust Protective Cover	D
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D

PART# LINKAGE PIN

AV4P5	Linkage Pin S.S.	E
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E

PART# REPAIR PACKING CARTRIDGE

AV400	Repair Packing Cartridge - Complete cartridge & o-ring for V411/V431 valve bodies.	F
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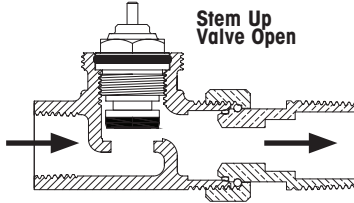
F

2 AND 3 WAY VALVES FLOW PATTERN

2 WAY

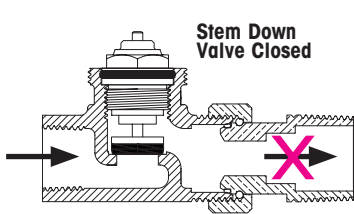
ZONE VALVE V200 V300

STEM UP = FLOW



A

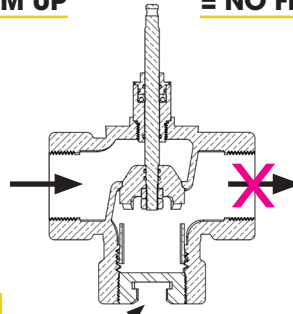
STEM DOWN = NO FLOW



B

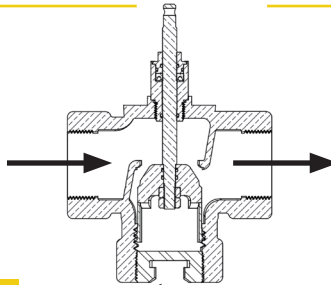
SYSTEM VALVE V411 V431

STEM UP = NO FLOW



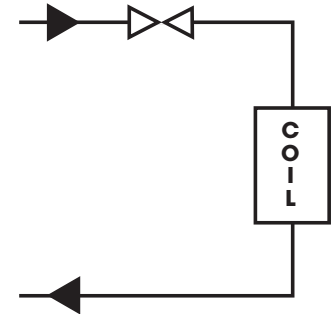
G

STEM DOWN = FLOW



H

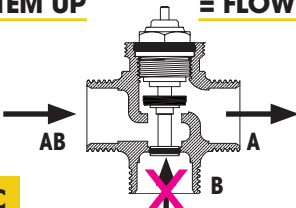
FLOW PATTERN



3 WAY

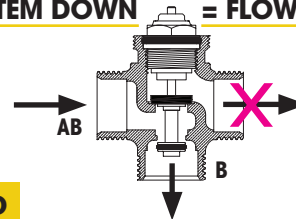
DIVERTING

STEM UP = FLOW AB-A



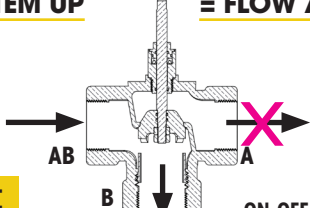
C

STEM DOWN = FLOW AB-B



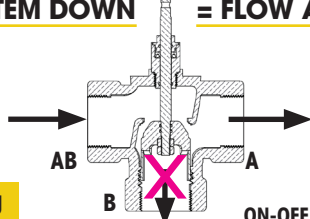
D

STEM UP = FLOW AB-B

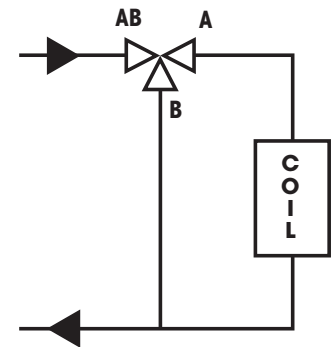


I

STEM DOWN = FLOW AB-A

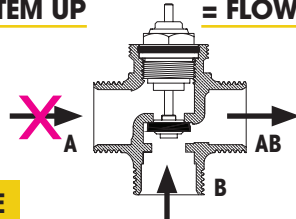


J



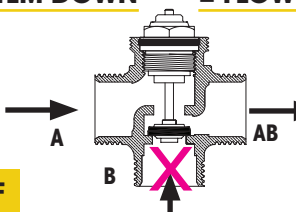
MIXING

STEM UP = FLOW B-AB



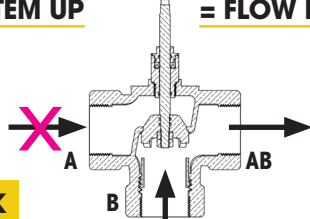
E

STEM DOWN = FLOW A-AB



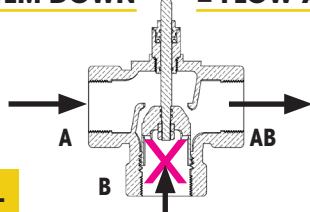
F

STEM UP = FLOW B-AB

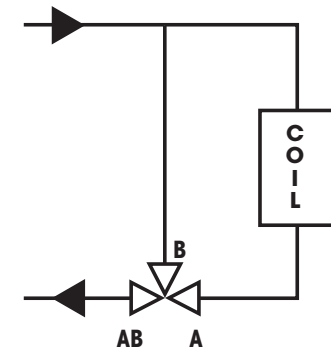


K

STEM DOWN = FLOW A-AB



L



REFERENCES

USE $\Delta P = 5$ FOR HEATING APPLICATION

USE $\Delta P = 3$ FOR COOLING APPLICATION

$$C_v = \frac{USGPM}{\sqrt{\Delta P(PSI)}}$$

$$C_v = 1.16 \frac{m^3 h}{\sqrt{\Delta p(Bars)}}$$

$$C_v = 42 \frac{L/S}{\sqrt{\Delta P(kPa)}}$$

CONVERSION		
1 LITRE/SEC	=	15.85 GALLON(US)/MIN
1 GALLON (US)	=	3.785 LITRES
1 GALLON (IMP)	=	4.546 LITRES
1 GALLON (IMP)	=	1.20095 GALLON (US)
1 MILES	=	1.609 KILOMETRE
1 POUND	=	0.4536 KILOGRAMME
1 Cv	=	1.16 Kv

Celsius	Fahrenheit	Celsius	Fahrenheit
-40	-40	35	95
-35	-31	40	104
-30	-22	45	113
-25	-13	50	122
-20	-4	55	131
-15	5	60	140
-10	14	65	149
-5	23	70	158
0	32	75	167
5	41	80	176
10	50	85	185
15	59	90	194
20	68	95	203
25	77	100	212
30	86	105	221

PRESSURE	BAR	PSI	H2O cm (39.2F,4C)	H2O INCH (39.2F,4C)	H2O FEET (39.2F,4C)	KILOPASCAL (KPA)
BAR	1	14.50377	1019.74	401.474	33.4562	100
PSI	0.06895	1	70.30800	27.680 7	2.30673	6.89476
H2O cm (39.2F,4C)	0.00098	0.01422	1	0.393701	0.03281	0.09806
H2O INCH (39.2F,4C)	0.00249	0.03613	2.54000	1	0.08333	0.24908
H2O FEET (39.2F,4C)	0.02989	0.43352	30.48000	12.02130	1	2.98898
KILOPASCAL (KPA)	0.01000	0.14504	10.19740	4.01474	0.33456	1

PRODUCT TAGGING AVAILABLE

YELLOW TAG

This tag is designed to stay with the valve assembly sold.



PRODUCT CODE

DESCRIPTION

TRACKING NUMBER - Allows Tracking of: Date of purchase, Purchased by, Date of shipping, Internal Production Work Order.

OEM AND CUSTOM SOLUTIONS

Spartan has developed a series of tailored solutions and custom products for the original equipment manufacturing (OEM) market.

Our expertise and understanding of client's requirements allows us to offer full configuration, customization and private labelling options for your specific needs.

- Casting (Bronze-Brass-Aluminum)
- Packaging
- Labeling and Tagging BAR / QR / SERIALIZED
- Assemblies
- Plastic Colors
- Program Logic
- Thermostats/Actuators/Wireless Protocol

CUSTOM LABELS

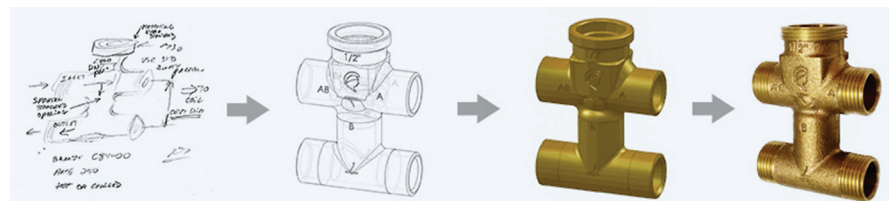


AV24
SYSTEM
VALVE



Spartan can provide custom labeling to suit your exact requirements. BAR / QR codes and serialised versions available.

CUSTOM CASTING



SKETCH REQUIREMENT • FEASIBILITY ANALYSIS CAD • 3D PRINT SAMPLES • PRODUCT



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