

ESBE Series VRG 3 & 4-Way Mixing & Diverting Valves



Applications:

The ESBE VRG series of 3 & 4-way valves are designed to mix water to the appropriate temperature to meet the zone or system requirements within heating and cooling systems.

The redesigned VRG valve replaces the MG and G series of rotary valves providing additional operational features. By either mixing or diverting, the fluid temperature leaving the valve is regulated by the VRG in either a manual operation or automatically when coupled with the ARA600 Series or 90 Series electronic motor actuator. These actuators are typically connected to an outdoor reset controller, DDC system or boilers with integrated controls.

Features:

- VRG series valves are a rotary design allowing for great flexibility in field piping layout
- Compact valve size
- Exceptionally low internal leakage rate
- Visible position indicator and knob
- Easily adaptable with ESBE electronic motor actuator styles ARA600 or series 90
- Suitable fluid: water (maximum 50% glycol) for closed loop heating or chilled systems

Ordering Information:

3-Way Valve, Series 131

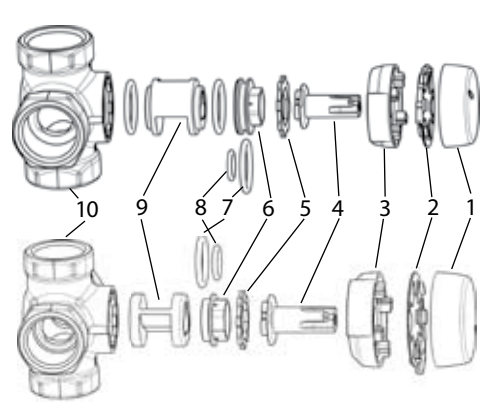
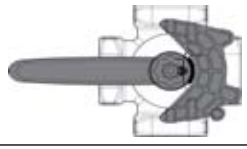
Code No.	Size	Connection	Cv ¹	Replaces	
				Code No.	Series
193B1500	½"	Female NPT	2.9	065B8970	3MG 15-2.5
193B1501	¾"		4.7	065B8971	3MG 20-4
193B1502	¾"		7.3	065B8950	3MG 20-6.3
193B1503	1"		7.3	065B8972	3MG 25-8
193B1504	1"		11.7	065B8968	3MG 25-12
193B1505	1-¼"		18.7	065B8969	3MG 32-18
193B1506	1-½"		29.3	065B8953	3 G 40
193B1507	2"		46.8	065B8954	3 G 50

4-Way Valve, Series 141

Code No.	Size	Connection	Cv ¹	Replaces	
				Code No.	Series
193B1531	¾"	Female NPT	4.7	065B8982	4MG 20-4
193B1532	¾"		7.3	065B8983	4MG 20-6.3
193B1533	1"		11.7	065B8984	4MG 25-8
193B1534	1-¼"		18.7	065B8991	4MG 32-12
193B1535	1-½"		29.3	065B8979	4 G 40
193B1536	2"		46.8	065B8980	4 G 50
193B1537	¾"	Female Solder	2.9	065B8967	4MG 20-2.5
193B1538	1"		7.3	065B8990	4MG 25-6.3
193B1539	1-¼"		13.9	065B8991	4MG 32-12

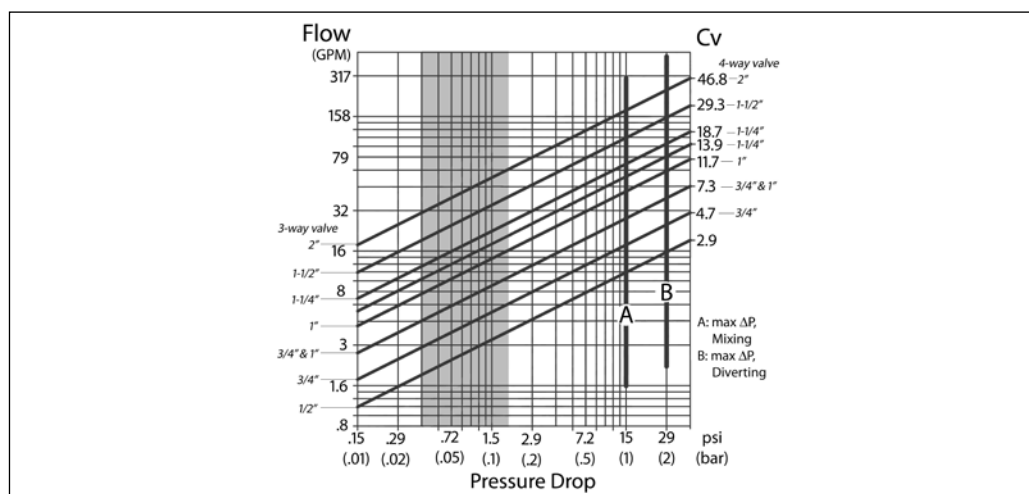
¹Cv value based on flow per 1 psi pressure drop through the valve.

Ordering Information
(Cont.):
Parts & Accessories

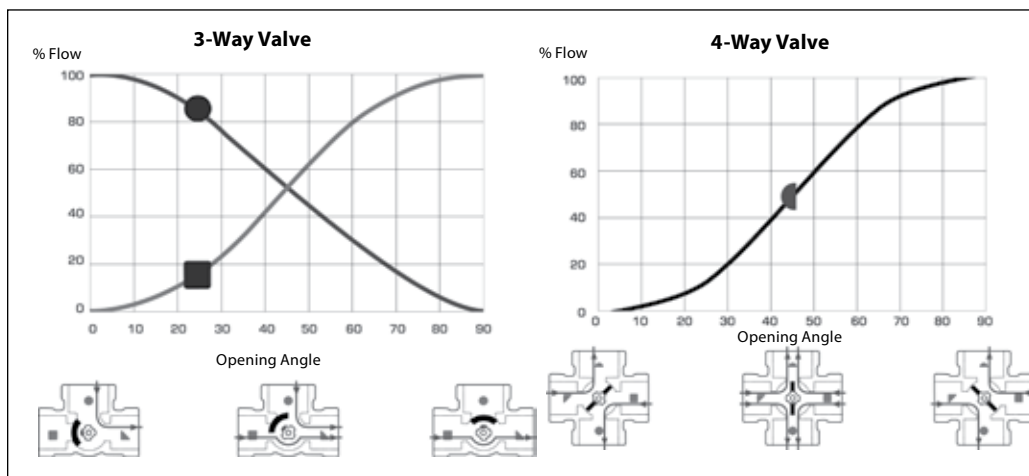
	Code No.	Part #'s	Description
	17006940	1 & 2	VRG valve knob & scale
	17006900	3, 4, 6 & 8	Valve shaft & seal kit, 1/2" & 3/4" 3 & 4-way
	17006910	3, 4, 6 & 8	Valve shaft & seal kit, 1" 3 & 4-way
	17006920	3, 4, 6 & 8	Valve shaft & seal kit, 1-1/4" 3 & 4-way
	17006930	3, 4, 6 & 8	Valve shaft & seal kit, 1-1/2" & 2" 3 & 4-way
	193B1616	-	VRG mounting kit for Series 90 actuator
	16000500	-	ARA600 motor series mounting kit (contains drive sleeve, pin, rotation indicator & mounting screw)

Technical Specifications:

Max. operating pressure	145psi (10 bar)	
Max. operating temperature	230°F (110°C)	
Min. operating temperature	-15°F (-10°C)	
Max. differential pressure	3-way	4-way
	Mixing: 14.5 psi (1bar) Diverting: 20psi (2bar)	14.5psi (1bar)
Leakage in % of flow (based on diff. pressure of 14.5psi (1 bar))	Mixing: <0.05% Diverting: <0.02%	<1.0%
Max. torque	<44lbf·in (<5Nm)	
Allowable fluid	1) Water, 2) Glycol mixture, max. 50%	

Pressure Drop Graph:


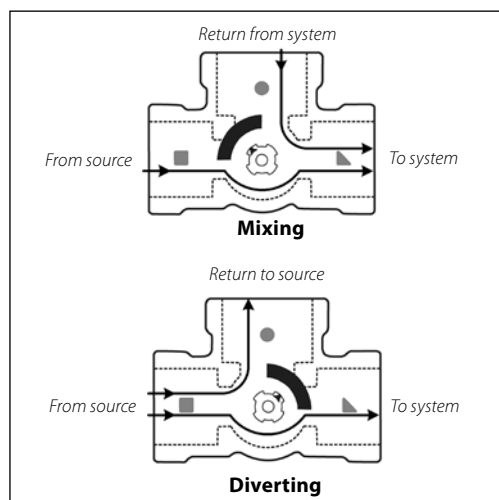
Flow Characteristics:



Piping Arrangement:

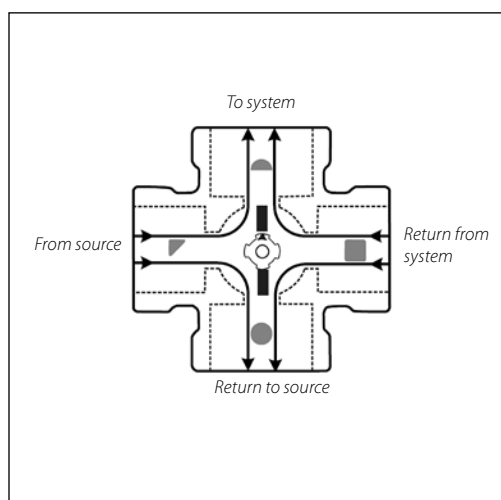
3-Way valves

- Ideal valves for mixing and diverting applications
- Reduces risk of low temperature water returning to boiler



4-Way valves

- Double mixing function, providing proportional mixing from source to system to source
- Reduces risk of low temperature water returning to boiler

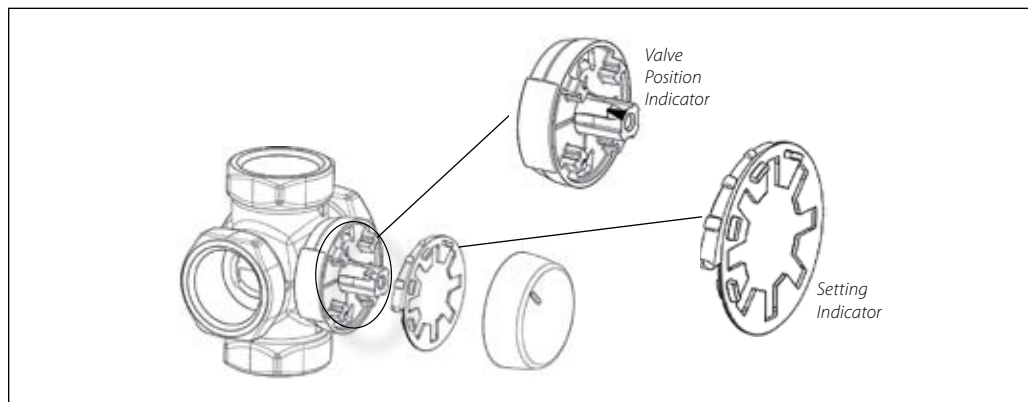
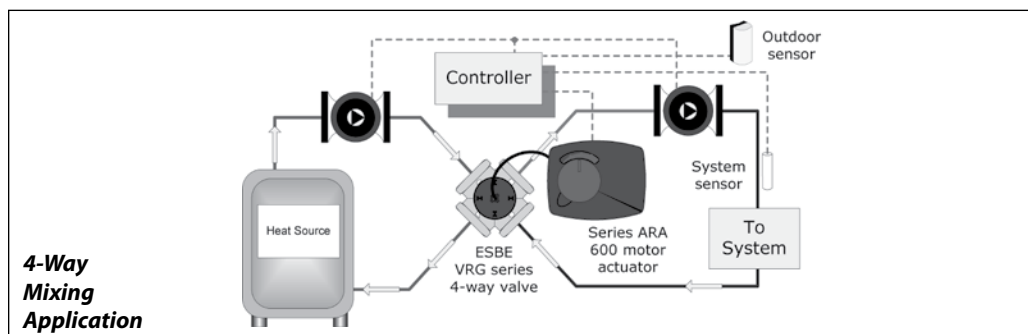
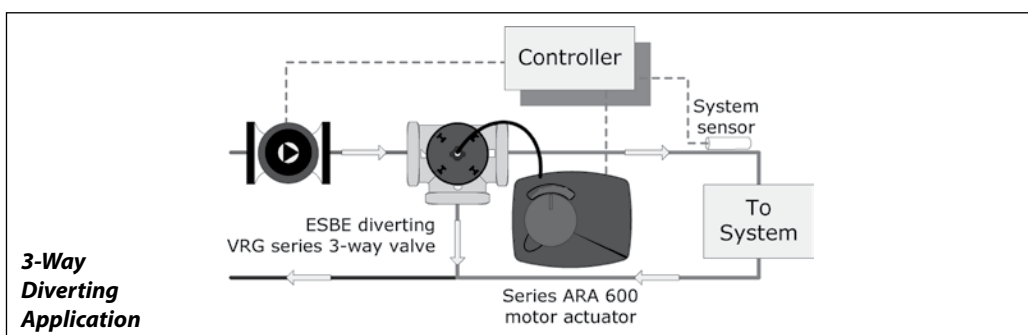
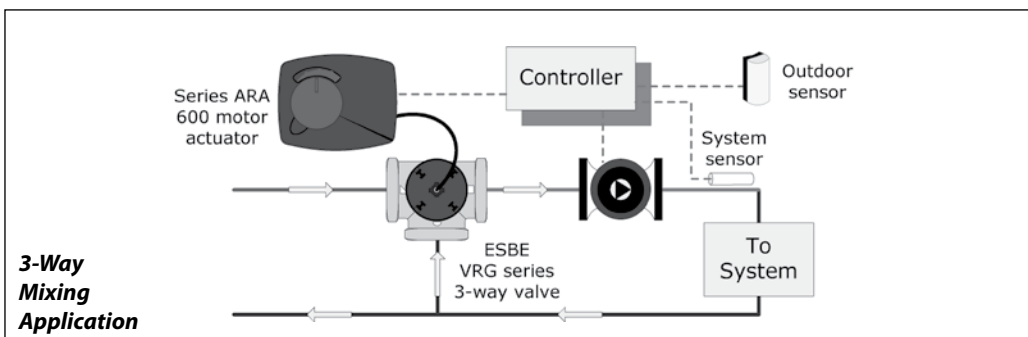


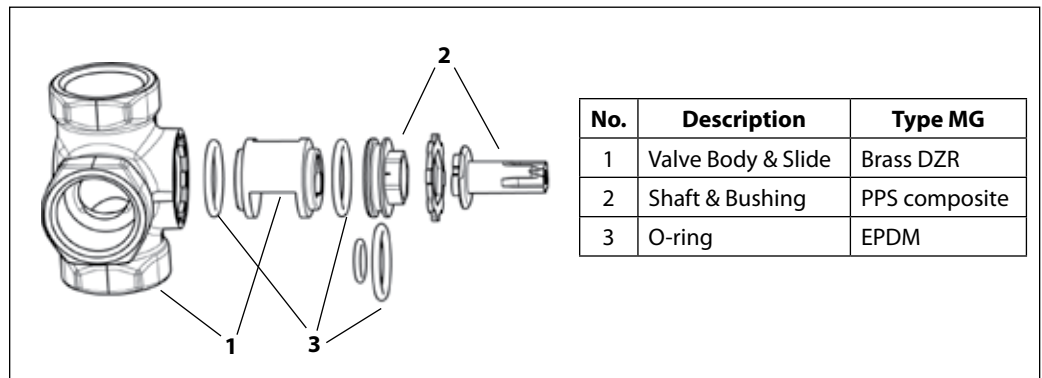
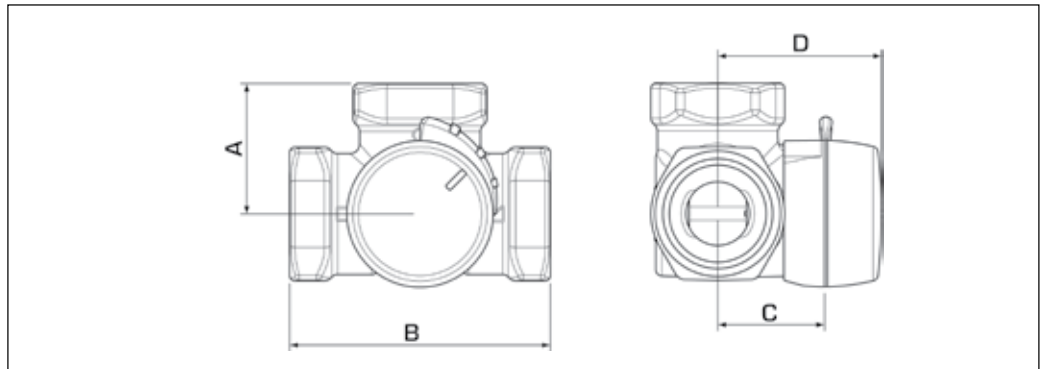
Each port of the VRG valve is stamped with an identifiable shape. These distinct stamped shapes provide a reference during the installation and trouble shooting of the valve.

Valve Position:

Located on the stem of the VRG is a position indicator in the shape of an arrow. This arrow correlates to the orientation of the internals of the valve. Depending on the required 90° travel of

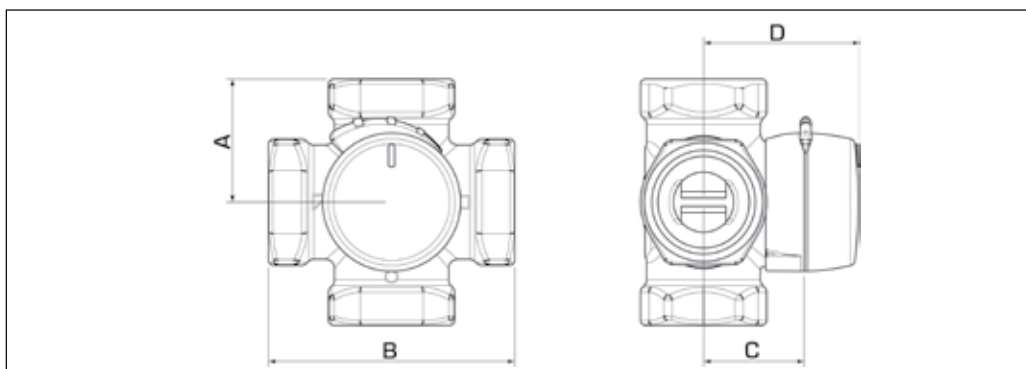
the valve from port to port, the setting indicator can be installed to reflect the direction of travel.

**Typical Installation:**

Construction:**Dimensions:****VRG 3-Way Valve, Series 131**

Code Number	Connection		A		B		C		D		Weight	
	Size	Type	inch	mm	inch	mm	inch	mm	inch	mm	lb.	kg
193B1500	1/2"	NPT	1.42	36	2.83	72	1.26	32	1.97	50	0.88	0.40
193B1501	3/4"		1.42	36	2.83	72	1.26	32	1.97	50	0.95	0.43
193B1502	3/4"		1.42	36	2.83	72	1.26	32	1.97	50	0.95	0.43
193B1503	1"		1.61	41	3.23	82	1.34	34	2.05	52	1.54	0.70
193B1504	1"		1.61	41	3.23	82	1.34	34	2.05	52	1.54	0.70
193B1505	1-1/4"		1.85	47	3.70	94	1.46	37	2.17	55	2.09	0.95
193B1506	1-1/2"		2.09	53	4.17	106	1.73	44	2.36	60	3.70	1.68
193B1507	2"		2.36	60	4.72	120	1.81	46	2.52	64	5.07	2.30

Dimensions (Cont.):



VRG 4-Way Valve, Series 141

Code Number	Connection		A		B		C		D		Weight	
	Size	Type	inch	mm	inch	mm	inch	mm	inch	mm	lb.	kg
193B1531	¾"	NPT	1.42	36	2.83	72	1.26	32	1.97	50	1.15	0.52
193B1532	¾"		1.42	36	2.83	72	1.26	32	1.97	50	1.15	0.52
193B1533	1"		1.61	41	3.23	82	1.34	34	2.05	52	1.76	0.80
193B1534	1-¼"		1.85	47	3.70	94	1.46	37	2.17	55	2.38	1.08
193B1535	1-½"		2.09	53	4.17	106	1.73	44	2.36	60	4.17	1.89
193B1536	2"		2.36	60	4.72	120	1.81	46	2.52	64	5.62	2.55
193B1537	¾"	Solder	2.44	62	4.88	124	1.26	32	1.97	50	1.15	0.52
193B1538	1"		2.56	65	5.12	130	1.34	34	2.05	52	1.76	0.80
193B1539	1-¼"		3.03	77	6.06	154	1.46	37	2.17	55	2.38	1.08

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