EcoStruxure™
Innovation At Every Level

Control, Performance and Flexibility

SmartX Actuators
VBB/VBS Series Ball Valves

schneider-electric.com/valves and actuators

Life Is On | Schneider Electric

When performance matters...

...and the pressure is on,

VBB/VBS Series Ball Valves and SmartX Actuators deliver results you can count on

It's not easy to be a building owner today. Energy legislation and conservation initiatives are everywhere. To meet these pressing environmental challenges, building owners need efficient, reliable and cost-effective ways to control the performance of their buildings. What can a building owner do to manage in this rapidly changing environment?

Clearly, there are no "silver bullet, one-size-fits-all" solutions to improving building performance. The answer is to find individual solutions that work together and allow the whole building to perform better. Schneider Electric can help you improve the overall performance of your building with innovative products and solutions that deliver measurable results – year after year.

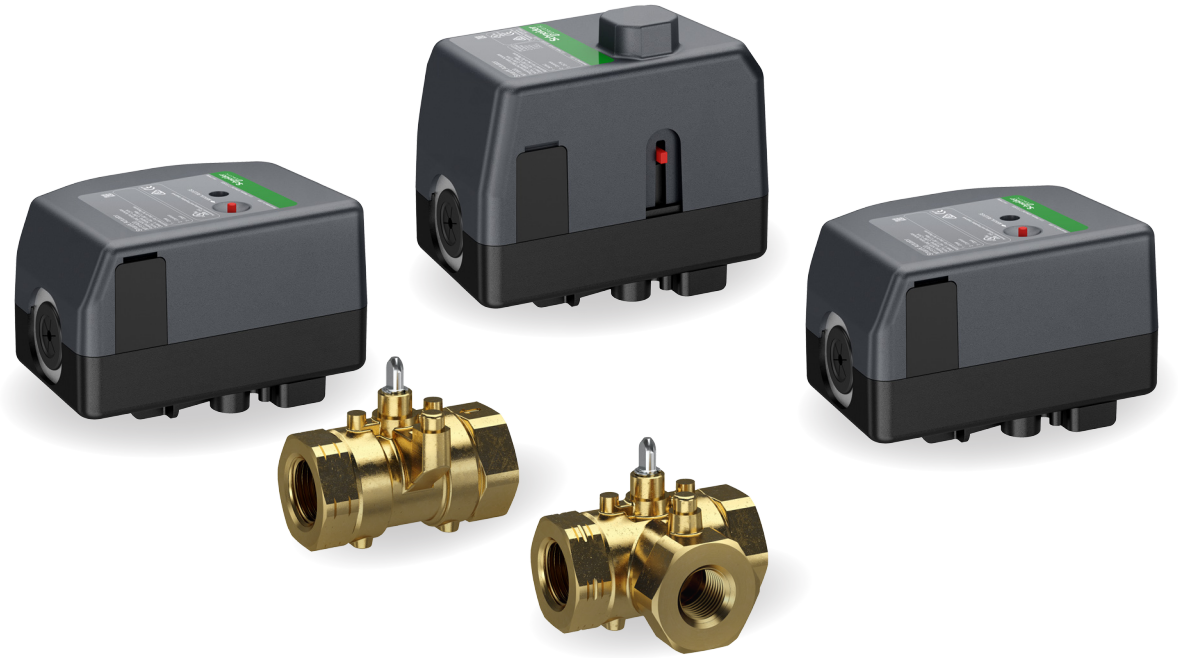
The VBB/VBS series of ball valves and SmartX actuators are a revolutionary line of products that can help you solve these problems quickly and easily. Designed with intelligence, efficiency and a high degree of interchangeability, these valves and actuators are simple to operate and offer some exclusive industry firsts.

Engineered as a complete ball valve assembly, the VBB/VBS series of valves and SmartX actuators are designed to be interchangeable and easily configured in the field. With the VBB/VBS series, you will always be assured of valve and actuator compatibility. The VBB/VBS valve and actuator family is a powerful combination that brings together the best of both worlds; a unique, low force valve design and the world renowned, patented PopTop actuator. The result is a system that is energy efficient, highly reliable and easy to maintain.

It's never been easier to have a simple and cost effective valve and actuator system. And because the VBB/VBS family of valves and actuators are from Schneider Electric, you can be sure these products come backed by superior customer service and support – maximizing your investment now and in the future.

Schneider Electric's comprehensive HVAC Control product portfolio is proven in thousands of installations worldwide. These powerful and reliable devices make building management systems operate more efficiently, save energy and provide optimal comfort for occupants.

Easy to install, easy to configure and easy to maintain



As assemblies the SmartX Actuators and VBB/VBS Series Ball Valves give you the freedom and flexibility to easily optimize and precisely control a wide variety of applications. Interchangeable valves and actuators make it simple to implement future upgrades and accommodate building system changes.

Many assembly configurations

The VBB/VBS Series consists of direct-coupled 2-position, floating or proportional spring return; and floating or proportional non-spring return SmartX Actuators. All can be mounted on 2-way or 3-way VBB/VBS valve bodies. They accept control signals from a DDC system, controller or thermostat for control of hot or chilled water and solutions of up to 60% glycol.

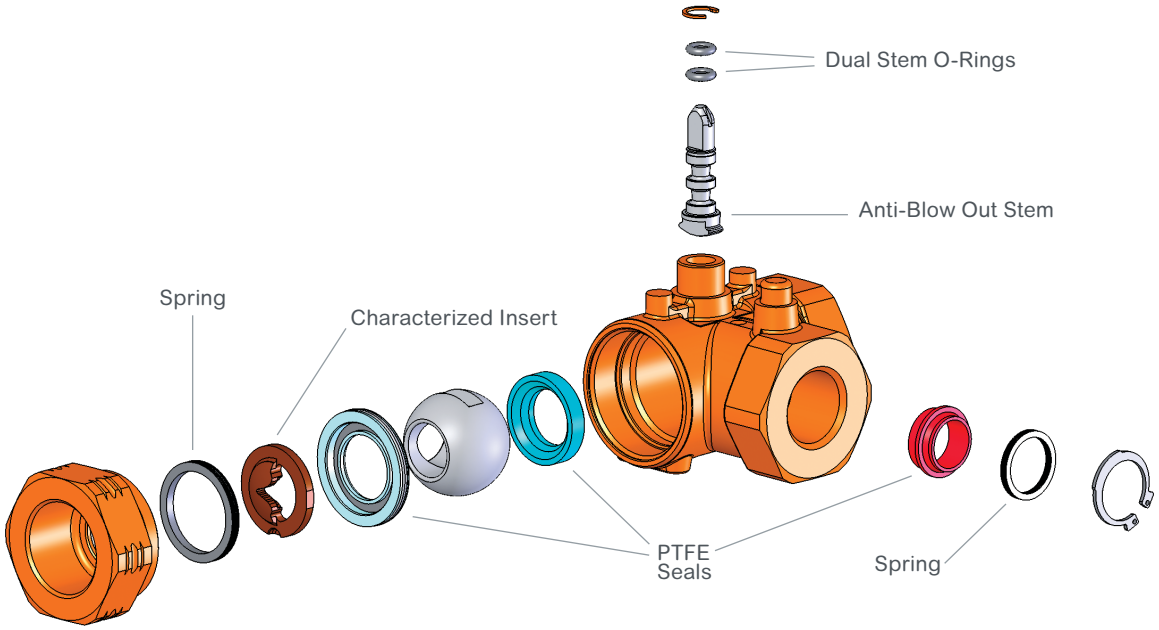
With Cv's up to 10, these assemblies are the right choice for most applications including VAV reheat, fan coil units, hot and chilled water coils in air handling units, heat pumps and unit ventilators where higher close-off pressures are required. The valves are available in ½" or ¾" (15 mm or 20 mm) sizes and either chrome plated brass ball with nickel plated stems or stainless steel ball with stainless steel stems. Also available, are actuators that include 10' (3.05 m) plenum rated cable and conduit connectors to accommodate the specific wiring requirements of all projects.

Easy to install

These assemblies are easy to install, configure and operate. The compact, low clearance design is typically half the size of the valve assemblies they replace, making these assemblies ideal for confined areas, which are common in many HVAC environments. Only 1" (25 mm) of clearance is needed to remove the actuator. The over-sized wrench flat design is contractor friendly; keeping threads and flats from deforming during installation and common job site abuse.

Easy to configure

No complex or costly programming tool is required to configure these valve assemblies. Proportional models can be configured for the desired input control signal in the field. Simply access Dip Switches via the access door, no cover removal necessary. Configure the Dip Switches for 0-10 Vdc, 2-10 Vdc, 0-5 Vdc, 5-10 Vdc or 4-20 mA. Multiple input signal options in a single actuator make product selection easy and flexible.



PTFE seals allow for lower friction and higher temperature resistance. With the addition of wave springs, the PTFE seals continually adjust for wear and contamination.

Easy to maintain

The patented PopTop™ actuator design makes it easy for installers to engage or detach the actuator from the valve body using the one-handed push lever. No tools are necessary for installation; this allows for easy servicing in hard to reach spaces.

300:1 Rangeability for more precise control

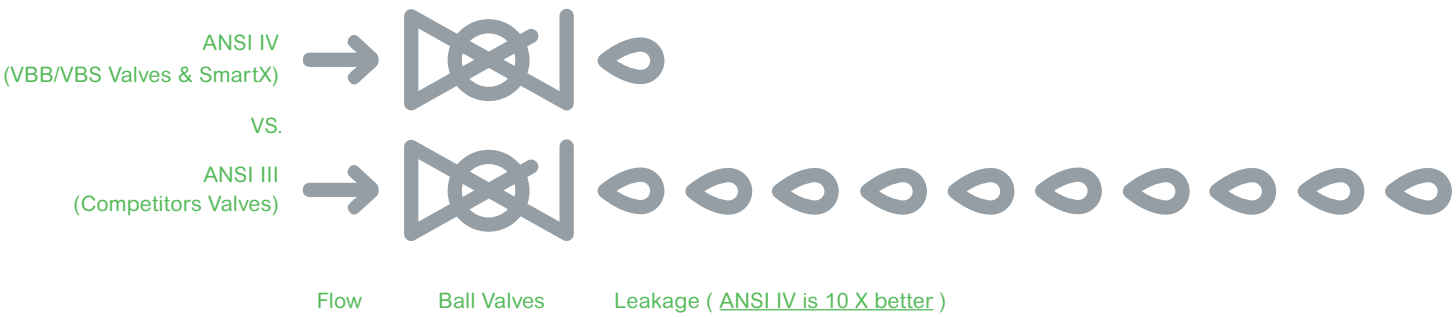
Higher rangeability enables all VBB/VBS valves to more precisely regulate flow, particularly from a closed position through the lower portion of the flow curve where precise control is most critical. Higher rangeability provides greater temperature control, ultimately delivering superior performance and value.

Less leakage, more savings

The VBB/VBS Series offer the industry the best seat leakage rating, ANSI IV rated (0.01%) for both A and B ports. Building owners and installers know that if you don't have control at close off, you don't have control. More importantly, leakage is loss of energy. The tight seal design in these new valves means less leakage through the valve. This combined with modulating control, assures maximum control, increased energy efficiency and overall operational savings.

100% Inspected and water tested

All VBB/VBS Ball Valves are inspected and water tested under pressure for proper operation. From the start, installers and customers are assured of more trouble free performance.



SmartX Actuators and VBB/VBS Ball Valves together as assemblies give you freedom and flexibility

With all these benefits, it's easy to understand why choosing a SmartX Actuator ball valve assembly makes perfect sense. These ball valve assemblies give you the freedom and flexibility to easily optimize and precisely control a wide variety of applications in HVAC building management systems. Interchangeable valves and actuators make it simple to implement future upgrades and accommodate building system changes. SmartX Actuators are all about the choices you have, to create the right combination for your needs – now and in the future.

2-Way VBB/VBS Series Valve Bodies

2-Way Valve

Size	Brass Trim Part Number	Stainless Steel Trim Part Number	Thread	Cv (kvs)
1/2"	VBB2N01	VBS2N01	NPT	0.7 (0.6)
	VBB2N02	VBS2N02		1.2 (1.0)
	VBB2N03	VBS2N03		2.1 (1.8)
	VBB2N04	VBS2N04		3.5 (3.0)
	VBB2N05	VBS2N05		4.7 (4.1)
	VBB2N06	VBS2N06		7.7 (6.7)
	VBB2N07[a]	VBS2N07[a]		10 (8.7)
3/4"	VBB2N11	VBS2N11		0.7 (0.6)
	VBB2N12	VBS2N12		1.2 (1.0)
	VBB2N13	VBS2N13		2.1 (1.8)
	VBB2N14	VBS2N14		3.5 (3.0)
	VBB2N15	VBS2N15		4.7 (4.1)
	VBB2N16	VBS2N16		7.7 (6.7)
	VBB2N17[a]	VBS2N17[a]		10 (8.7)

a. Full port

100% inspected and water tested. From the start, contractors and building maintenance staff are assured of more trouble free performance.

3-Way VBB/VBS Series Valve Bodies

3-Way Valve

Size	Brass Trim Part Number	Stainless Steel Trim Part Number	Thread	Cv (kvs) A Port	Cv (kvs) B Port
1/2"	VBB3N02	VBS3N02	NPT	1.0 (.85)	0.8 (0.7)
	VBB3N05	VBS3N05		4.5 (3.9)	2.7 (2.3)
	VBB3N06	VBS3N06		7.3 (6.3)	4.1 (3.5)
	VBB3N07[a]	VBS3N07[a]		10.0 (8.7)	4.8 (4.1)
3/4"	VBB3N12	VBS3N12		1.0 (.85)	0.8 (0.7)
	VBB3N15	VBS3N15		4.5 (3.9)	2.7 (2.3)
	VBB3N16	VBS3N16		7.3 (6.3)	4.1 (3.5)
	VBB3N17[a]	VBS3N17[a]		10.0 (8.7)	4.8 (4.1)

a. Full port

The built in Time Out feature prevents excessive actuator wear when the control signal time out is not set by the controller.

SmartX Actuators - Non-Spring Return Floating & Proportional

Non-Spring Return Floating/ Proportional VBB/VBS Series Ball Valve SmartX Actuator

Part Number	Control Signal	Power	Spring Return Action (Valve Normal Position)	VA @ 24 Vac 50/60 Hz	Leads	Stroke Time, sec. 50/60 Hz	Time-out Delay, sec. 50/60 Hz
M131A00	Float	2.0W, 4.5 VA	None	2.3/2.4	Removeable Terminal Block[b]	135 sec.	181 sec.
M131A01					10 ft. (3.05 m) Plenum Cable[c]		
M133A00	Proportional, Non-Spring return (0 – 10 V, 0 – 5 V, 5 – 10 V, 2 – 10 V, 4 – 20 mA)			2.7/2.8	Removeable Terminal Block[b]		145 sec.
M133A01					10 ft. (3.05 m) Plenum Cable[c]		

SmartX Actuators - Spring Return Floating & Proportional

Spring Return Normally Open/ Normally Closed Floating/ ProportionalVBB/VBS Series Ball Valve SmartX Actuator

Part Number	Control Signal	Power	Spring Return Action	VA @ 24 Vac 50/60 Hz	Leads	Stroke Time, sec. 50/60 Hz	Time-out Delay, sec. 50/60 Hz
M112A00	Float	2.0W, 4.5 VA	Normally Open	3.2/3.3[d]	Removeable Terminal Block[b]	135 sec.	181 sec.
M112A01					10 ft. (3.05 m) Plenum Cable[c]		
M122A00			Normally Closed		Removeable Terminal Block[b]		
M122A01					10 ft. (3.05 m) Plenum Cable[c]		
M113A00	Proportional Normally Open, Spring return (0 – 10 V, 0 – 5 V, 5 – 10 V, 2 – 10 V, 4 – 20 mA)		Normally Open	2.7/2.8[d]	Removeable Terminal Block[b]		145 sec.
M113A01					10 ft. (3.05 m) Plenum Cable[c]		
M123A00	Proportional Normally Close, Spring return (0 – 10 V, 0 – 5 V, 5 – 10 V, 2 – 10 V, 4 – 20 mA)		Normally Closed		Removeable Terminal Block[b]		
M123A01					10 ft. (3.05 m) Plenum Cable[c]		

SmartX Actuators - Spring Return Two-position

Spring Return Normally Open/ Normally Closed Two-Position VBB/VBS Series Ball Valve SmartX Actuator

Part Number	Control Signal	Spring Return Action (Valve Normal Position)	VA/Voltage	Leads	Stroke Timing[g]	Spring Return Timing[g]	End Switch
M210A00	Two-Position	Normally Open	3.5/1.8 at 24Vac/24Vdc	Removeable Terminal Block[b]	50 sec.	35 sec.	
M210A01				10 ft. (3.05 m) Plenum Cable [c]			
M210A11				10 ft. (3.05 m) Plenum Cable [c]			SPST
M210A02				18 in. (45 cm) Appliance Wire			
M210A12				18 in. (45 cm) Appliance Wire			SPST
M210M02			6.0/6.0 at 100V-277Vac, 50/60 Hz	18 in. (45 cm) Appliance Wire			
M210M12				18 in. (45 cm) Appliance Wire			SPST
M220A00		Normally Closed	3.5/1.8 at 24Vac/24Vdc	Removeable Terminal Block[b]			
M220A01				10 ft. (3.05 m) Plenum Cable [c]			
M220A11				10 ft. (3.05 m) Plenum Cable [c]			SPST
M220A02				18 in. (45 cm) Appliance Wire			
M220A12				18 in. (45 cm) Appliance Wire			SPST
M220M02			6.0/6.0 at 100V-277Vac, 50/60 Hz	18 in. (45 cm) Appliance Wire			
M220M12				18 in. (45 cm) Appliance Wire			SPST

a. Dip Switch Selectable. Default configured for 0 to 10 Vdc input signal, direct acting control.
b. All terminal block and appliance wire units accept a 1/2" (12.7 mm) conduit connector fitting (.875" diameter (22.2 mm)).
c. All plenum cable units include an integral 3/8" (9.5 mm) conduit connector fitting.
d. Size transformer for 10 VA per actuator.
e. For 4 to 20 mA control, a separate isolated transformer must be used with each valve.

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