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LabSmith Automated Valves

- **Automatically switched fluid routing**
- **Low swept volume**
- **Fast switching**
- **Innovative software for coordinated control**
- **Direct connection to 1/32” or 1/16” tubing, or 360 µm OD capillary**
- **Compatible with a wide range of chemicals**



Automated valve actual size

Model	Swept Volume	Valve Volume	Through Hole Diameter	Capillary or Tubing Interface
AV201-C360	130 nl	170 nl	0.01” (250 µm)	360 µm OD (via p/n C360-100)
AV201-T132	130 nl	170 nl	0.01” (250 µm)	1/32” OD (via p/n T132-100)
AV201-T116	130 nl	280 nl	0.01” (250 µm)	1/16” OD (via p/n T116-100)
AV202-C360	90 nl *	130 nl *	0.01” (250 µm)	360 µm OD (via p/n C360-100)
AV202-T132	90 nl *	130 nl *	0.01” (250 µm)	1/32” OD (via p/n T132-100)
AV202-T116	90 nl *	130 nl *	0.01” (250 µm)	1/16” OD (via p/n T116-100)
AV2X2-T116	130 nl	280 nl	0.01” (250 µm)	1/16” OD (via p/n T116-100)
AV303-C360	60 nl *	100 nl *	0.01” (250 µm)	360 µm OD (via p/n C360-100)
AV303-T132	60 nl *	100 nl *	0.01” (250 µm)	1/32” OD (via p/n T132-100)
Model	**Internal Volume**		**Through Hole Diameter**	**Capillary or Tubing Interface**
AV801-C360	370 nl		0.01” (250 µm)	360 µm OD (via p/n C360-100)
AV801-T132	370 nl		0.01” (250 µm)	1/32” OD (via p/n T132-100)
AV801-T116	2.8 µl		0.02” (500 µm)	1/16” OD (via p/n T116-100)

* Per leg

Automated Microfluidic Valves

Model	Port Configuration	Typical Application
201	3 port, 2 position (+ closed), "L" pattern flow	Redirecting flow
202	4 port, 2-position (+ closed), two simultaneous flow streams between adjacent ports.	Continuous dispensing/refilling (with Breadboard reservoir and two SPS01 syringe pumps)
2X2	4 port, 2-position (+ closed), cross flow	Stop flow, switching between reagents
303	6 port, 2-position (no closed option), three simultaneous flow streams between adjacent ports	Sample injection
801	9-port, 8-position, one common port	Select from multiple reagents and/or direct to multiple outputs

Wetted Material	Vespel.® Select valves available in PCTFE (contact LabSmith)
Switch Time	AV201, 202, 2X2, 303: 0.65–0.78 s (A–B or B–A); 0.25–0.50 s (closed–A or closed–B) AV801: 1.25–2.75 s. Time depends on whether ports are adjacent or spaced. Valve switches in counterclockwise direction only. For example, switching from port 1 to 2, switch time ~ 1.25 sec; from port 2 to 1, switch time ~ 2.75 sec
Actuation method	Gear motor
Cleaning	Flush valve ports with DI water or solvent
Service Temperature Range	50–176°F (10–80°C)
Maximum Pressure	2000 psi (14 MPa)
Electrical Connection	Connects to 4VM02 valve manifold via flat flex ribbon cable

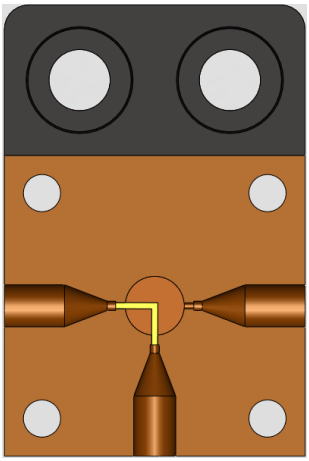
Valve Accessories	
4VM02 Valve Manifold	Required. For connecting up to 4 automated valves; includes 4 flat flex connector cables.
EIB200 Automation Interface	Required for control of 4VM02 valve manifold via uProcess™ software; includes software, LabVIEW™ drivers, and SDK
Breadboard	Optional platform for mounting AV series valves, 4VM02, and other microfluidic devices. p/n uPB-05, uPB-08, uPB-12, or iBB.
Mounting Hardware	Set of 20 thread-forming screws (2-28-1/4") to mount 10 valves or reservoirs to breadboard. p/n LS-SCREWS.25.
One-piece Fittings	Required for connection to capillary or tubing. p/n C360-100, T132-100, or T116-100.

AV201

3 port, 2 position (+ closed), “L” pattern flow.

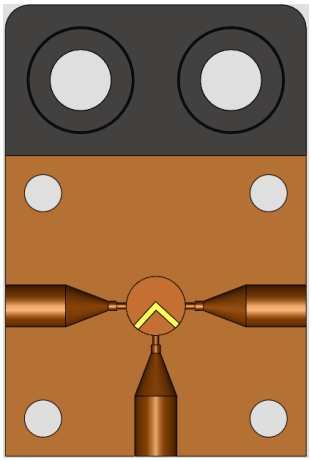
Configurations

Position A



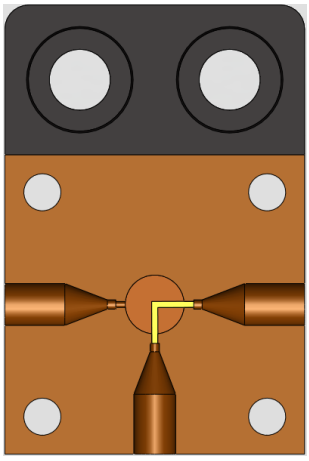
Yellow indicates “valve volume”

Closed



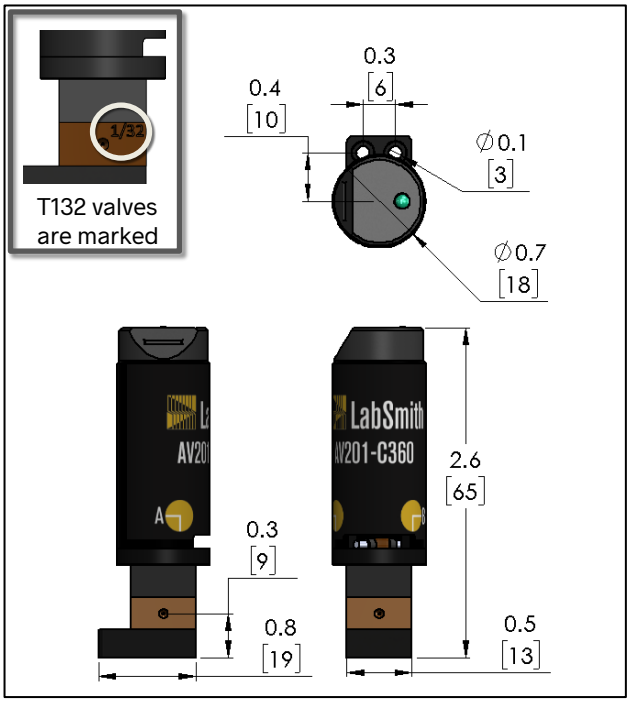
Yellow indicates “swept volume”

Position B

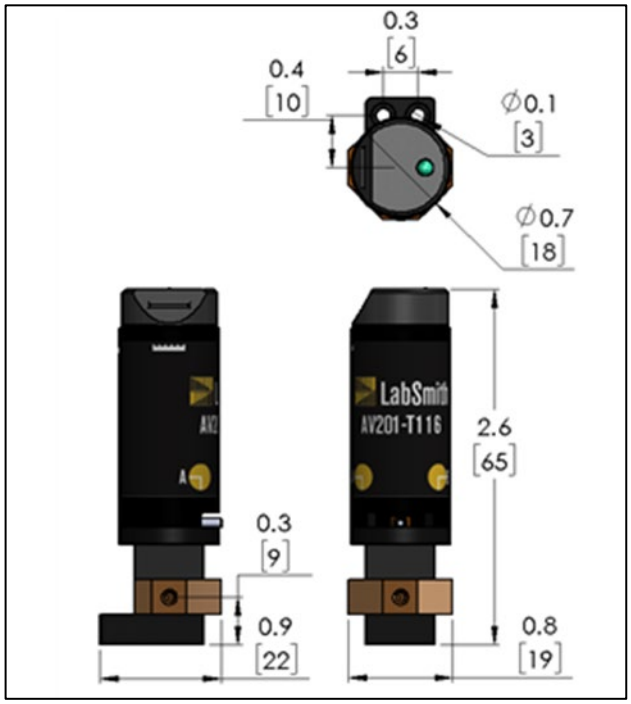


Yellow indicates “valve volume”

Dimensions



AV201-C360
AV201-T132



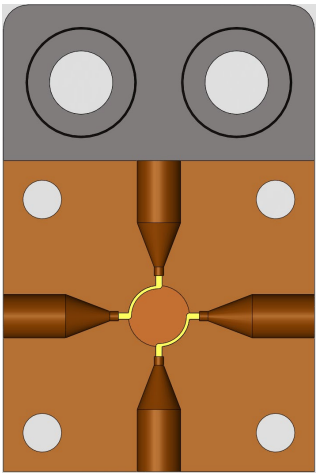
AV201-T116

AV202

4 port, 2-position (+ closed), two simultaneous flow streams between adjacent ports.

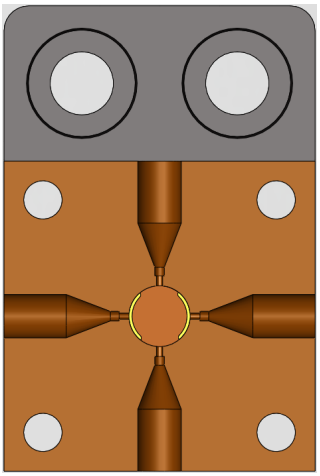
Configurations

Position A



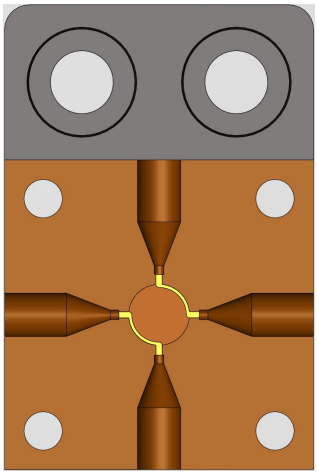
Yellow indicates “valve volume”

Closed



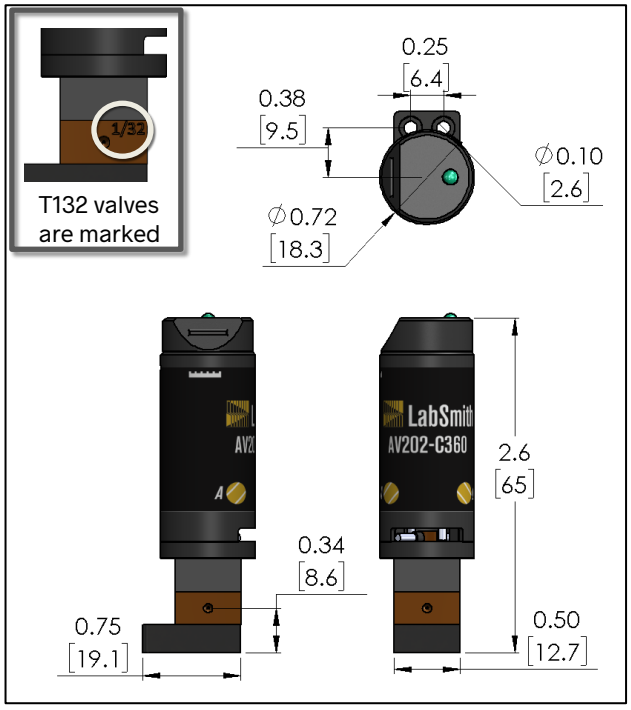
Yellow indicates “swept volume”

Position B

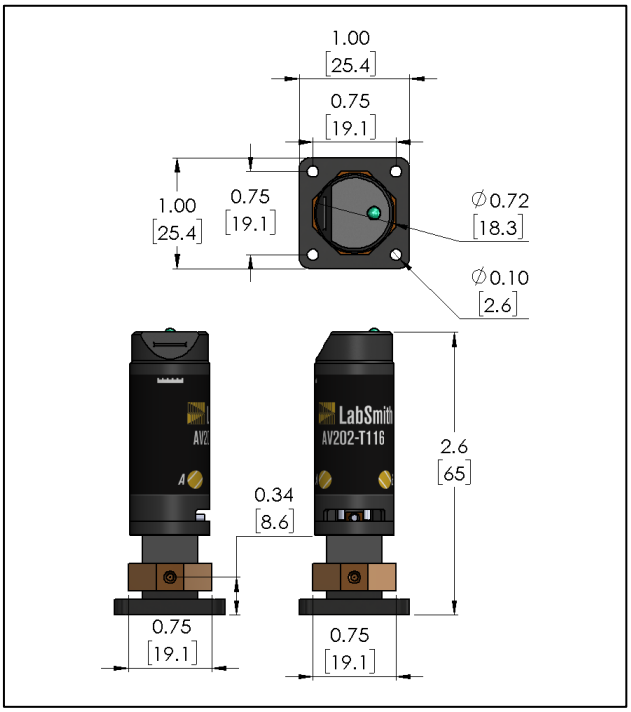


Yellow indicates “valve volume”

Dimensions



AV202-C360
AV202-T132



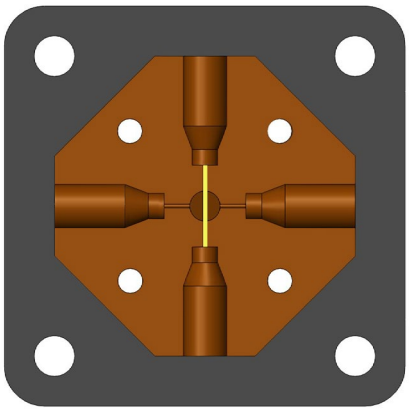
AV202-T116

AV2X2

3 port, 2 position (+ closed), cross flow.

Configurations

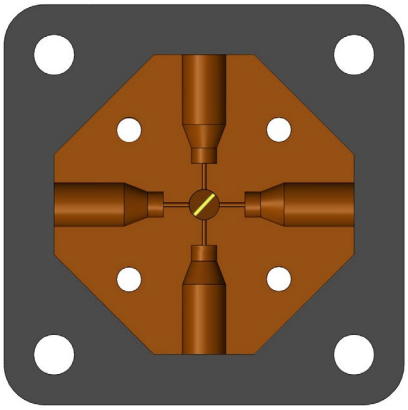
Position A



Valve Front

Yellow indicates “valve volume”

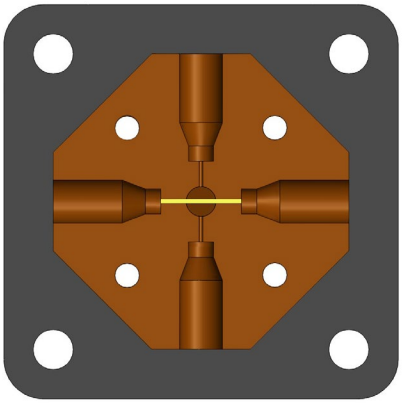
Closed



Valve Front

Yellow indicates “swept volume”

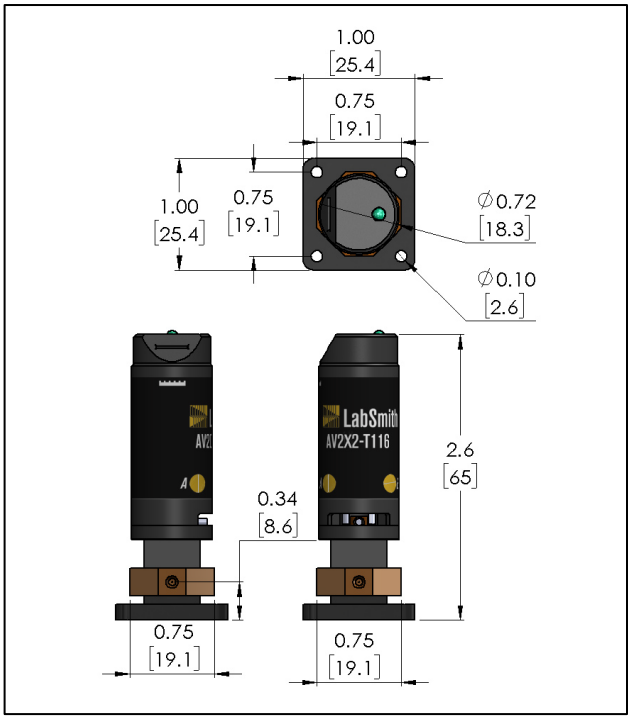
Position B



Valve Front

Yellow indicates “valve volume”

Dimensions



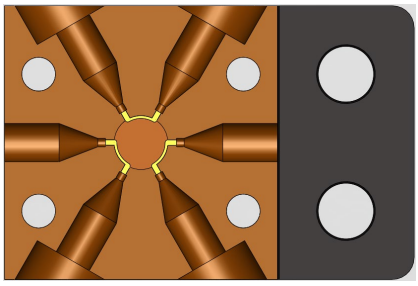
AV2X2-T116

AV303

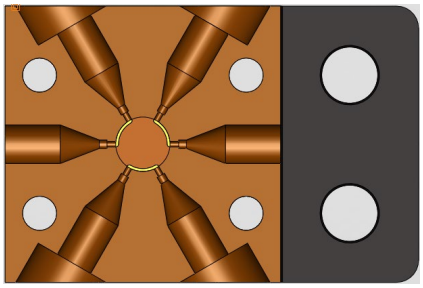
6 port, 2-position (no closed option), three simultaneous flow streams between adjacent ports.

Configurations

Position A

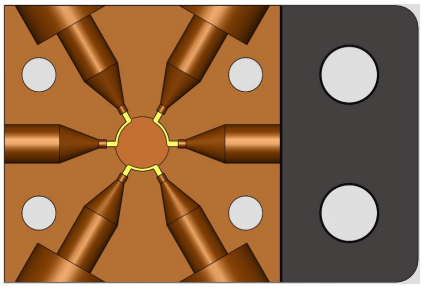


Yellow indicates “valve volume”



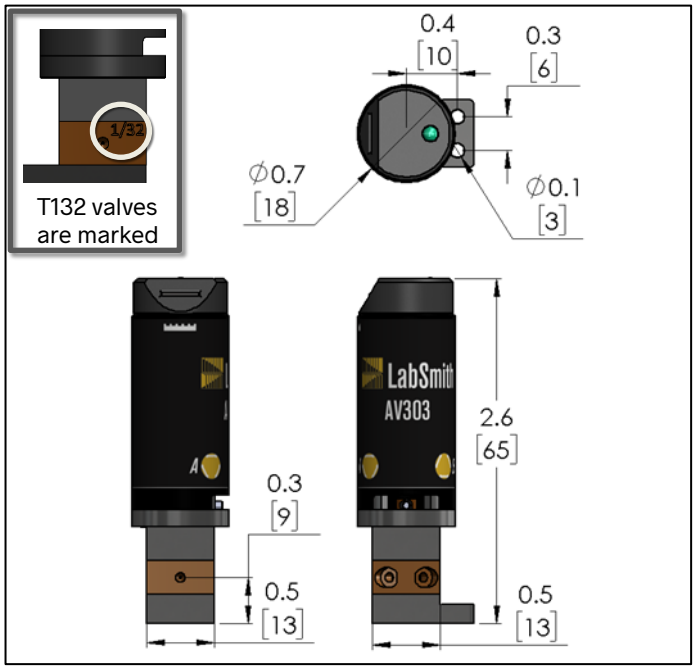
Yellow indicates “swept volume”

Position B



Yellow indicates “valve volume”

Dimensions



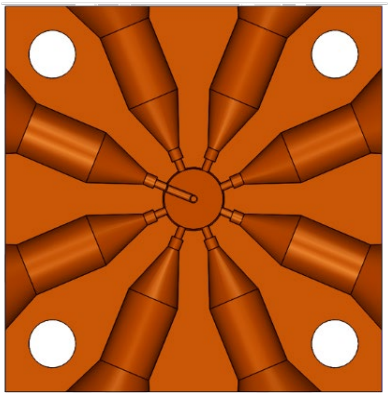
AV303-C360
AV303-T132

AV801

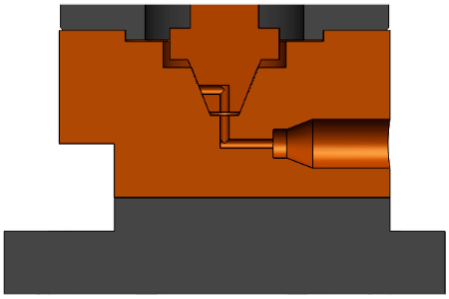
9-port, 8-position, one common port

Configurations

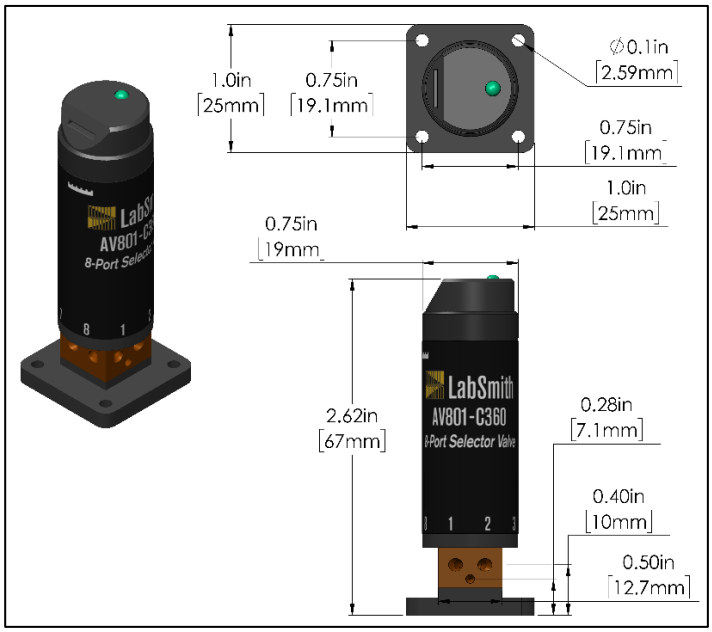
Top view showing selector ports



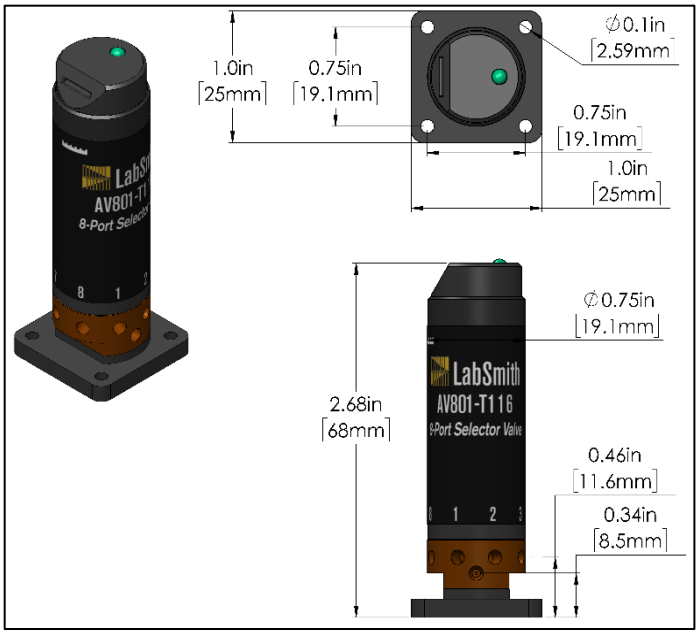
Side view showing common port and stem



Dimensions



AV801-C360
AV801-T132



AV801-T116

Some valve models are available in manual versions. See the MV Series Manual Valves spec sheet for more information.



3D models available upon request

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