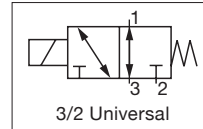
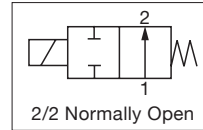
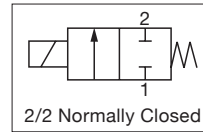


# ASCO™ MINIATURE SOLENOID VALVES

## STEPPER MOTOR PINCH VALVES

**SERIES**  
**S170-S370**

- Stepper motor pinch valve, suitable to shut off media without producing neither turbulent flows, nor dead spaces. Particularly suitable for most of the analytical, medical and food applications.
- If equipped with fitting control electronics, the valve can perform ON-OFF functions, as well as analog input and potentiometer control. The “OPEN” and “CLOSE” positions of the valve will be set as indicated in the section “OPERATING INSTRUCTIONS”.
- The system allows a bi-directional through flow and a high flow rate.
- The valve is suitable for elastic tubings with hardness up to 90 Shore A.
- The tubing (not included in our supply) is the only material in contact with the fluid.
- Typical applications include:
  - Blood analysis devices
  - Sample handling
  - Devices with dynamic regulation



General Valve Information*	
Body	Anodized aluminium
Pinching device	POM (reinforced acetal copolymer)
Engine cover	PA (Polyamide)
Board cover	PA (Polyamide)
Internal components	Brass and Stainless Steel
max. Tube hardness	90 Shore A
Ambient temperature	-10°C +60°C
Minimum step	0.033mm/step

\* Ensure that the compatibility of the materials in contact with the fluids is verified.

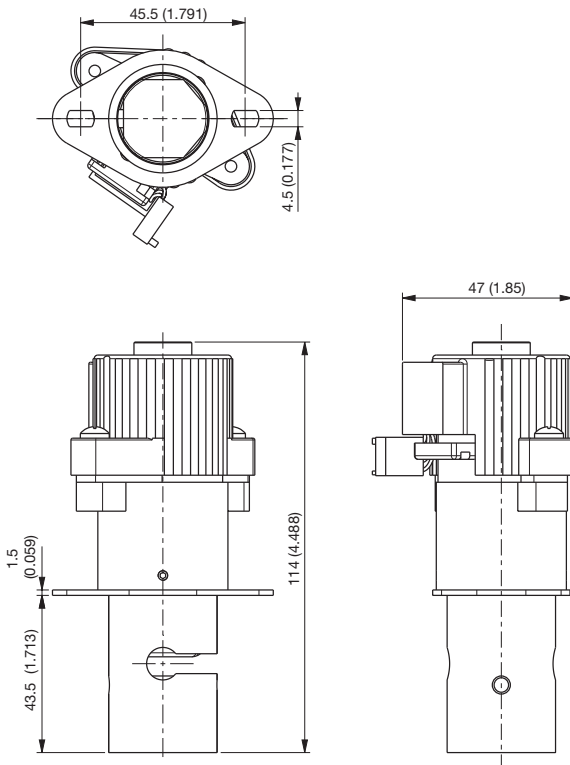
	Electrical Characteristics	
	Versions without electronic board	Versions with electronic board
Continuous duty	ED 100%	ED 100%
Insulation class	B (130°C)	B (130°C)
Drive methods	1-2 phase	
Drive circuit	bipolar chopper	
Windings resistance	24Ω	
Current / phase	500mA	
Electric connection	Molex pitch 2.54mm 4 pins	Molex pitch 2.54mm 6 pins Molex pitch 2.54mm 2 pins
Protection degree	IP 40 (DIN40050)	IP 40 (EN 60529)

01093GB-2019-R01

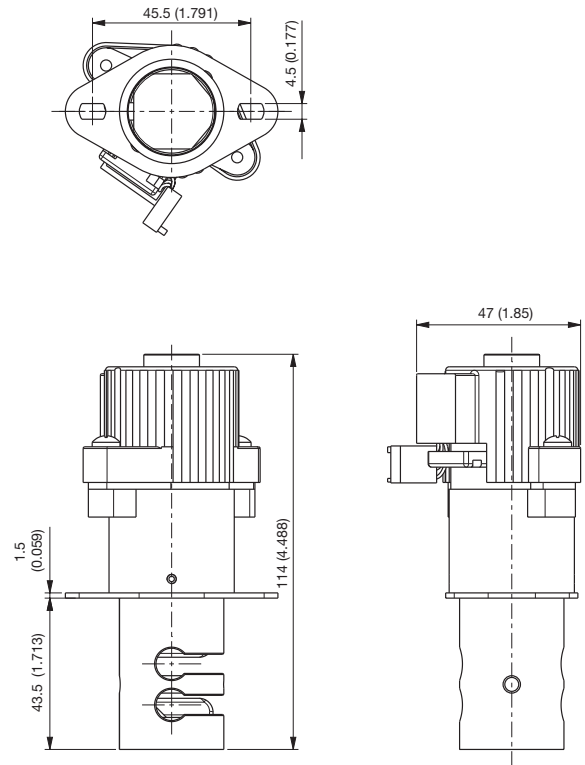
Specifications											
Catalog number	Tubing		Pinching strength (N)	Closing speed (mm/s)	Power Rating (W)	Voltage	Operation	LED indicators			
	max. O.D. (mm)	orifice size (mm)						Green	Yellow	Red	Blue
<b>2-way</b>											
S170XA01X0900XX	9.5		up to 80N	3.33	9	12V DC	Wiring	N/A			
<b>2-way On/Off</b>											
S170XA01X1900VU	9.5	6.4	up to 80N	3.33	9	[12%24] V	Wiring	Valve open	Valve closed	Alarm/ Malfunction	Programming mode
S170XA01X2900VU							Analog input (0-5V)	see Operating instructions			
S170XA01X3900VU							Analog input (4-20mA)				
S170XA01X4900VU							Potentiometer	Valve open	Valve closed		
S170XA01X5900VU							Fail saving	Valve open	Valve closed		
<b>2-way normally open</b>											
S170XA01X8900VU	9.5	6.4	up to 80N	3.33	9	[12%24] V	Fail saving controlled via Potentiometer proportional flow control	Valve open	Valve closed	Alarm/ Malfunction	Programming mode
<b>2-way normally closed</b>											
S170XA01X8901VU	9.5	6.4	up to 80N	3.33	9	[12%24] V	Fail saving controlled via Potentiometer proportional flow control	Valve open	Valve closed	Alarm/ Malfunction	Programming mode
S170XA02X1900VU							On/Off				
<b>3-way</b>											
S370XA01X0900XX	9.5		up to 80N	3.33	9	[12%24] V	Wiring	N/A			
<b>3-way On/Off</b>											
S370XA01X1900VU	9.5	6.4	up to 80N	3.33	9	[12%24] V		Upper Tube open Lower Tube closed	Upper Tube closed Lower Tube Open	Alarm/ Malfunction	Programming mode

Dimensions: mm (inches)

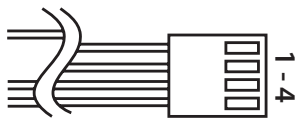
### S170-XA01X0900XX



### S370-XA01X0900XX



## STEPPER MOTOR WIRING



PIN NO.	WIRE COLOR	MOTOR
1	YELLOW	B3
2	ORANGE	B1
3	BROWN	A3
4	BLACK	A1

## WIRE COLOUR CODE

CONNECTOR PIN NO.	HEAD SPINDLE IN STEP			
	1	2	3	4
1	+	+	-	-
2	-	-	+	+
3	-	+	+	-
4	+	-	-	+

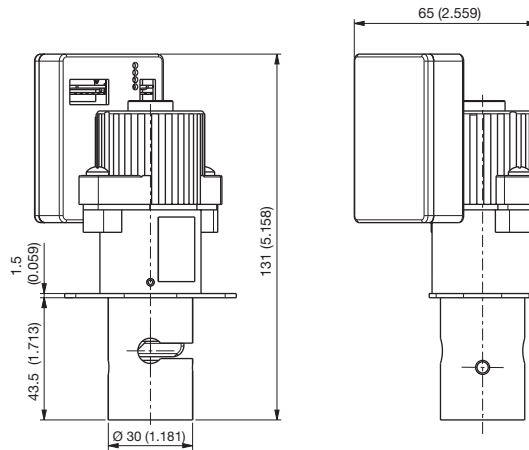
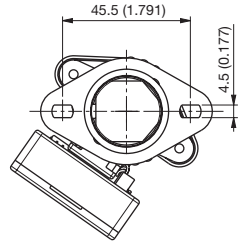
CONNECTOR PIN NO.	HEAD SPINDLE out STEP			
	1	2	3	4
1	-	-	+	+
2	+	+	-	-
3	-	+	+	-
4	+	-	-	+

### Notes

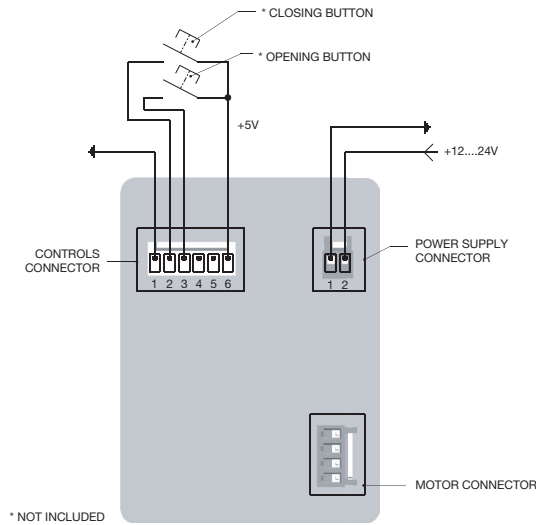
- Some data, e.g. actuating time and power absorption, are directly depending on the electronic control and can vary accordingly
- For the use of a tubing with outside diameter smaller than 6mm, it is necessary to install the tubing guide sleeve (drawing K29501)

Dimensions: mm (inches)

S170XA01X1900VU  
S170XA01X2900VU  
S170XA01X3900VU  
S170XA01X4900VU  
S170XA01X5900VU  
S170XA02X1900VU



### Electrical connection



### S170XA01X1900VU

#### Operating Instructions

When power is supplied, the valve will reset (red and green LEDs on) and will automatically move to OPEN position (red LED off).

1. Insert the tube in the respective slot
- The valve is now operational and by providing the opening or closing pulse (minimum 10ms), the valve will act accordingly.

LED signals meaning:

- Green LED on -> Valve open
- Yellow LED on -> Valve closed

#### Notes

- Valve position fixed on loss of power.
- When the power will be restored, the valve will reset (red and green LEDs on) and will automatically move to OPEN position (red LED off).
- For use with different tubings, the min/max opening of the pinching device can be modified as indicated in the Maintenance Instructions. As an alternative, it is also possible to order the valves already programmed, with the desired strokes.
- Some data, e.g. actuating time and power absorption, are directly depending on the electronic control and can vary accordingly
- Valve position fixed on loss of power. "Fail Saving" function available on demand.

### S170XA02X1900VU

#### Operating Instructions

When power is supplied, the valve will reset (red and green LEDs on) and will automatically move to CLOSED position (red LED off).

1. Give an OPEN command
  2. Insert the tube in the respective slot
- The valve is now operational and by providing the opening or closing pulse (minimum 10ms), the valve will act accordingly.

LED signals meaning:

- Green LED on -> Valve open

#### Notes

- Valve position fixed on loss of power.
- When the power will be restored, the valve will reset (red and green LEDs on) and will automatically move to CLOSED position (red LED off).

### S370XA01X1900VU

#### Operating Instructions

When power is supplied, the valve will not move and the red LED will be on.

By simultaneously providing the opening and closing pulses, the valve will reset (red, yellow and green LEDs on) and will automatically move to OPEN position (red and yellow LEDs off).

1. Insert the tube in the upper slot
2. Provide a closing command and insert the tube in the lower slot

The valve is now operational and by providing the opening or closing pulse (minimum 10ms), the valve will act accordingly.

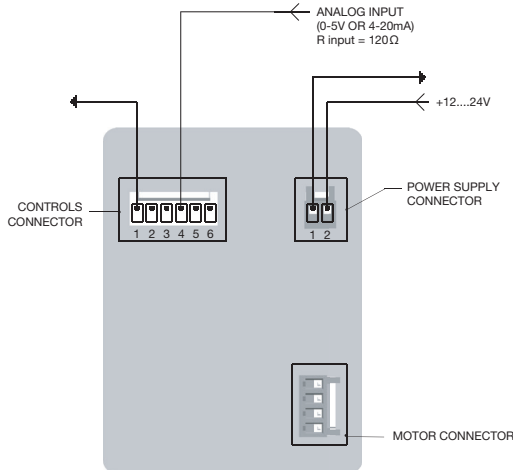
LED signals meaning:

- Green LED on -> upper slot open – lower slot closed
- Yellow LED on -> upper slot closed – lower slot open

#### Notes

- Valve position fixed on loss of power.
- When the power will be restored, the valve will not move and the red LED will be on.
- Remove the tube from the lower slot. If the current position of the valve makes it difficult to remove the tube, use the closing command to facilitate this operation. During this phase, the yellow and red LEDs will be on.
- After removing the tube, provide simultaneously the opening and closing pulses, so that the valve resets (red, yellow and green LEDs on). This way, the valve will automatically move to OPEN position (red and yellow LEDs off). Perform a closing command and insert the tube in the lower slot.

**Electrical connection**



**S170XA01X2900VU**  
**S170XA01X3900VU**

**Operating Instructions**

When power is supplied, the valve will reset (red and green LEDs on) and will automatically move to CLOSED position.

Depending on the version, there will be:

- a. green LED on and yellow LED flashing for the “voltage version” [0 ÷ 5]V
- b. yellow LED on and green LED flashing for the “current version” [4 ÷ 20]mA.

1. Depending on the chosen version, supply 5V or 20mA input to have a complete opening of the valve.
2. Insert the tube in the respective slot

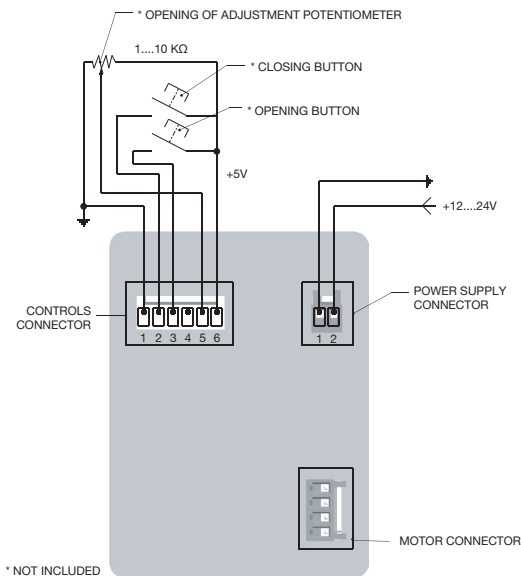
The valve is now operational and by providing a [4 ÷ 20]mA or a [0 ÷ 5]V signal (depending on the chosen version), the valve will act accordingly.

LED signals meaning:

- green LED on and yellow LED flashing -> analogic input on ( “voltage version” )
- yellow LED on and green LED flashing -> analogic input on ( “current version” )

**Notes**

- Valve position fixed on loss of power.
- When the power will be restored, the valve will reset (red and green LEDs on) and will automatically move to the position set by the input analog signal.
- For use with different tubings, the min/max opening of the pinching device can be modified as indicated in the Maintenance Instructions. As an alternative, it is also possible to order the valves already programmed, with the desired strokes.
- Some data, e.g. actuating time and power absorption, are directly depending on the electronic control and can vary accordingly
- Valve position fixed on loss of power. “Fail Saving” function available on demand.



\* NOT INCLUDED

**S170XA01X4900VU**

**Operating Instructions**

When power is supplied, the valve will reset (red and green LEDs on) and will automatically move to OPEN position (red LED off).

If the position of the potentiometer doesn't allow a complete opening of the valve (the yellow LED will be on, in addition to the red and green ones), adjust the potentiometer so as to have a complete opening.

1. Insert the tube in the respective slot

The valve is now operational and by providing the opening or closing pulse (minimum 10ms), the valve will act accordingly.

LED signals meaning:

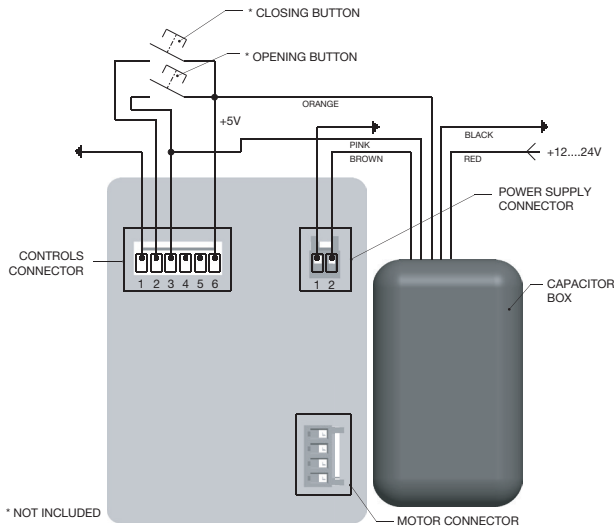
- Green LED on -> Valve open\*
- Yellow LED on -> Valve closed

\*the opening degree is controlled by the position of the potentiometer.

**Notes**

- Valve position fixed on loss of power. When the power will be restored, the valve will reset (red and green LEDs on) and will automatically move to OPEN position (red LED off). If the potentiometer is not in complete opening position, the yellow LED will be on.  
NB: With the open valve, it will be possible to adjust the opening degree according to your needs, by adjusting the potentiometer.
- For use with different tubings, the min/max opening of the pinching device can be modified as indicated in the Maintenance Instructions. As an alternative, it is also possible to order the valves already programmed, with the desired strokes.
- Some data, e.g. actuating time and power absorption, are directly depending on the electronic control and can vary accordingly
- Valve position fixed on loss of power. “Fail Saving” function available on demand.

### Electrical connection



### S170XA01X5900VU

#### Operating Instructions

When power is supplied, the valve will be in OPEN position (green LED on).

1. Insert the tube in the respective slot

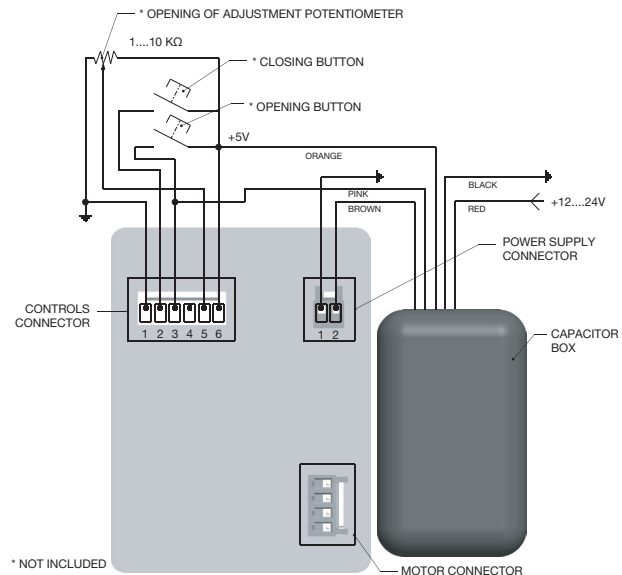
The valve is now operational and by providing the opening or closing pulse (minimum 10ms), the valve will act accordingly.

LED signals meaning:

- Green LED on -> Valve open
- Yellow LED on -> Valve closed

#### Notes

- The valve, being normally open on loss of power (through the condenser block), will move to OPEN position.
- For use with different tubings, the min/max opening of the pinching device can be modified as indicated in the Maintenance Instructions. As an alternative, it is also possible to order the valves already programmed, with the desired strokes.
- Some data, e.g. actuating time and power absorption, are directly depending on the electronic control and can vary accordingly



### S170XA01X8900VU S170XA01X8901VU

#### Operating Instructions

When power is supplied, the valve will reset (red and green LEDs on) and will automatically move to OPEN position (red LED off).

If the position of the potentiometer doesn't allow a complete opening of the valve (the yellow LED will be on, in addition to the red and green ones), adjust the potentiometer so as to have a complete opening.

1. Insert the tube in the respective slot

The valve is now operational and by providing the opening or closing pulse (minimum 10ms), the valve will act accordingly.

LED signals meaning:

- Green LED on -> Valve open\*
- Yellow LED on -> Valve closed

\*the opening degree is controlled by the position of the potentiometer.

#### Notes

- The normally closed valve will, in case of loss of power (through the capacitor box), move to CLOSED position. The normally open valve will, in case of loss of power (through the capacitor box), move to OPEN position\*. NB: With the open valve, it will be possible to adjust the opening degree according to your needs, by adjusting the potentiometer.
- For use with different tubings, the min/max opening of the pinching device can be modified as indicated in the Maintenance Instructions. As an alternative, it is also possible to order the valves already programmed, with the desired strokes.
- Some data, e.g. actuating time and power absorption, are directly depending on the electronic control and can vary accordingly

