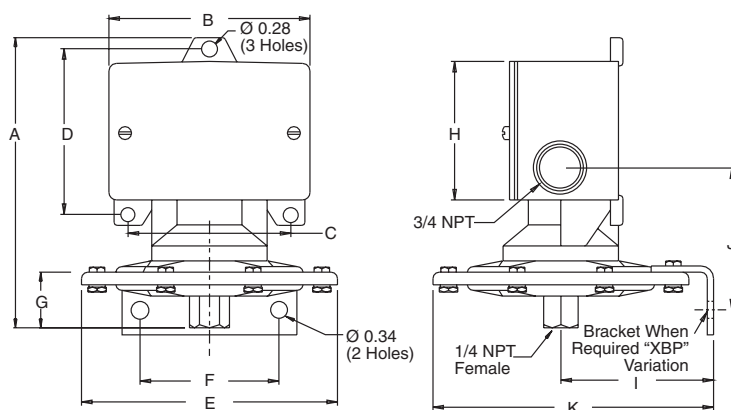


# Installation and Maintenance Instructions for B400 & B700 ASHCROFT® Snap Action Switches for Pressure Control



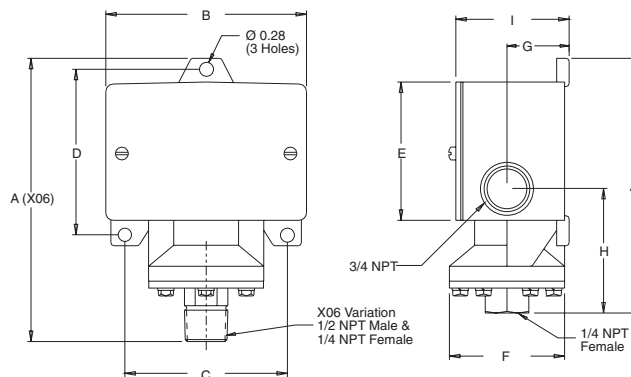
## B400



	A	B	C	D	E	F	G	H	I	
IN.	5 <sup>1</sup> / <sub>16</sub>	4	3 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>8</sub>	2 <sup>29</sup> / <sub>32</sub>	5 <sup>7</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	2 <sup>9</sup> / <sub>16</sub>	2.7 lb
MM	(144)	(102)	(83)	(84)	(130)	(44)	(138)	(73)	(70)	(1.2 kg)

### STANDARD RANGES

10, 30, 60, 100, 150 °H<sub>2</sub>O  
15°H<sub>2</sub>O vac.-15°H<sub>2</sub>O

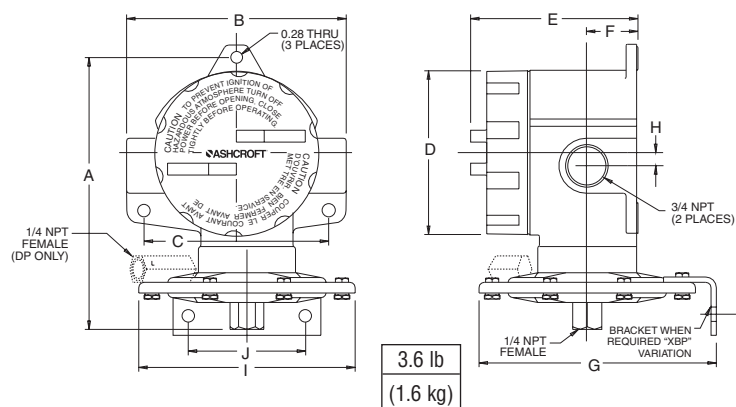


	A	B	C	D	E	F	G	
IN.	5	4	3 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>9</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	1.8 lb
MM	(127)	(102)	(83)	(84)	(70)	(59)	(30)	(.81 kg)

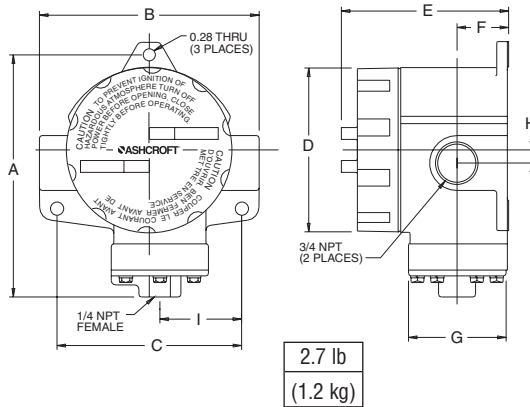
### STANDARD RANGES

15, 30, 60, 100, 200, 400, 600 psi  
1000, 3000 psi  
30°Hg vac.-0

## B700



	A	B	C	D	E	F	G	H	I	J	
IN.	6 <sup>7</sup> / <sub>16</sub>	5 <sup>13</sup> / <sub>64</sub>	4 <sup>3</sup> / <sub>8</sub>	3 <sup>29</sup> / <sub>32</sub>	3 <sup>31</sup> / <sub>32</sub>	1 <sup>7</sup> / <sub>32</sub>	5 <sup>5</sup> / <sub>8</sub>	3 <sup>29</sup> / <sub>32</sub>	5 <sup>5</sup> / <sub>8</sub>	2 <sup>25</sup> / <sub>32</sub>	3.6 lb
MM	(164)	(132)	(111)	(99)	(96)	(31)	(59)	(8)	(130)	(71)	(1.6 kg)



	A	B	C	D	E	F	G	H	I	
IN.	5 <sup>47</sup> / <sub>64</sub>	5 <sup>13</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>8</sub>	3 <sup>31</sup> / <sub>32</sub>	1 <sup>7</sup> / <sub>32</sub>	2 <sup>5</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	2.7 lb
MM	(146)	(132)	(111)	(99)	(100)	(31)	(59)	(8)	(49)	(1.2 kg)

## INTRODUCTION

The Ashcroft pressure switch is a precision built U.L. and F.M. approved control device which features a mechanical snap action switch. Controllers are available for operation on pressure or vacuum with fixed or variable differential. Also manual reset types for operation on increasing or decreasing pressure. The manual reset types remain tripped until reset by pressing a button on top of the enclosure. Standard electrical switch is SPDT,

available with various electrical characteristics. Two SPDT switch elements mounted together are available except on variable Deadband and manual reset types. Various wetted material constructions for compatibility with a range of pressure media may be obtained.

The Ashcroft snap action pressure switch is furnished in the standard NEMA 4 and explosion-proof NEMA 7 & 9 enclosure styles. Both enclosures are epoxy coated aluminum castings.

# Installation and Maintenance Instructions for B400 & B700 ASHCROFT® Snap Action Switches for Pressure Control



## INSTALLATION

These controls are precision instruments and should never be left with internal components exposed. During installation insure that covers are in place and conduit openings are closed except when actually working on the control.

## MOUNTING B400 AND B700 SERIES

Three holes external to the enclosure for surface mounting. Location of these holes is shown on the general dimension drawing. They may also be mounted directly on pressure line using the pressure connection. *When tightening control to pressure line, always use the wrench flats or hex on the lower housing.*

## ELECTRICAL CONNECTIONS

Remove cover

**B400 Series** – two screws hold cover to enclosure

**B700 Series** – cover unscrews

## CONDUIT CONNECTIONS

**Note** – It is recommended that Teflon tape or other sealant be used on conduit, bushing or plug threads to ensure integrity of the enclosure.

**B400 Series standard** – one  $\frac{3}{4}$ " NPT conduit hole right side.

**B700 Series standard** – two  $\frac{3}{4}$ " NPT conduit holes with one permanent plug. NEMA 7 & 9 enclosures require proper conduit seals and breathers as per the National Electrical Code.

**B400 & B700 Series** – XJL variation – two  $\frac{3}{4}$ " NPT conduit holes with two  $\frac{3}{4}$ " to  $\frac{1}{2}$ " NPT reducing bushings.

**B400 Series** – XJK variation – two  $\frac{3}{4}$ " NPT conduit holes.

## B400 SERIES

**SPDT** – Wire directly to the switch according to circuit requirements. On controls with pilot lights wire lights according to circuit diagram on inside of cover. See special wiring instruction tag for single switches with two pilot lights and dual switches with one or more lights.

**2 SPDT** – Dual switching elements consist of two SPDT switches mounted together in a bracket. Switches are calibrated to have simultaneous operation within 1% of range either on increasing or decreasing pressure but not in both directions. Wire directly to the front and rear switch according to circuit requirements. Leads are provided on rear switch color coded as follows:

Common	– White
Normally Closed	– Red
Normally Open	– Blue

See SPDT instructions for pilot light hook-up.

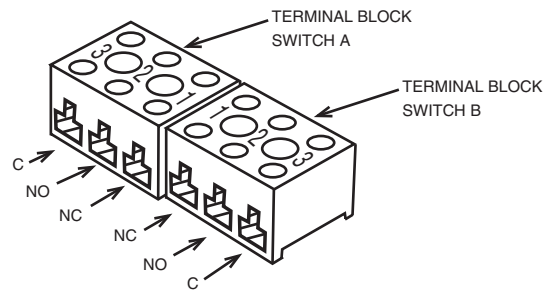
When hermetically sealed switch element(s) are supplied, the lead color coding is as follows:

Common	– White
Normally Closed	– Red
Normally Open	– Blue

## B700 SERIES

**SPDT** – Wire directly to the switch according to circuit requirements.

**2 SPDT** – Wire to front switch terminal block (left) and rear switch terminal block (right) as marked. Strip insulation  $\frac{5}{16}$ ", insert in proper terminal connector and tighten clamping screw to secure.



## ADJUSTMENT OF SETPOINT

**B400 & B700 Series** – A single setpoint adjustment nut ( $\frac{7}{8}$ ") is located centrally at the bottom on the inside of the enclosure.

For accurate setpoint calibration, mount the switch on a calibration stand, a pump or catalog No.1305 deadweight gauge tester. A suitable reference standard such as an Ashcroft Duragauge or Test Gauge is necessary to observe convenient changes in pressure.

As received, the pressure switch will normally be set to approximately 90% of the indicated range. Pressurize the system to required setpoint and turn the adjustment nut until switch changes mode. Direction of turning is indicated on a label affixed to the inside of the control enclosure. When setpoint has been achieved raise and lower pressure to insure that setpoint is correct.

After installation of the control replace cover to insure electrical safety and to protect internal parts from the environment.

## B450 and B750 VARIABLE DEADBAND SWITCHES

Deadband is varied by rotating the wheel on the precision switch. When viewed from the front of the enclosure, rotation to the left increases deadband – rotation to the right decreases deadband. Letters on the wheel may be used as a reference. Deadbands obtainable will vary from 0.5% to 9% of pressure range depending on range segment and type of diaphragm.

## ADJUSTMENT OF SETPOINT

As received, the pressure switch will normally be set to approximately 90% of range. Rotate the wheel on the MICRO SWITCH all the way to the right; this will provide smallest deadband. Pressurize the system to the required setpoint and turn the adjustment nut until the switch changes mode. Lower the pressure to reset the switch. Rotate the wheel on the MICRO SWITCH until the desired deadband is obtained. The upper setpoint will be changing upward with this adjustment. Lower the pressure to reset the switch. Then increase the pressure to the desired setpoint and turn the adjusting nut until the switch changes mode. Lower the pressure and check resetpoint and deadband.

**Note** – As indicated above, adjustment of setpoint is made by use of  $\frac{7}{8}$ " nut. Precision switch element mounting screws and bracket adjusting screw are factory sealed and should not be tampered with.

**Note** – Since vacuum models are already above setpoint at atmosphere, the Normally Open (NO) circuit will be closed as received.