

This general purpose Ashcroft® switch series is ideal for use in virtually all Industrial and OEM applications.

- Watertight NEMA 4X enclosure, IP66
- Choice of switch elements for all applications, including hermetically sealed
- Wide choice of wetted materials, including all-welded Monel or stainless steel
- Fixed or limited adjustable deadband
- Approved for UL, CSA and FM<sup>(8)</sup> ratings

• Choice of actuators, including designs for fire-safe and NACE applications<sup>(8)</sup>

• Readily available

• Standard pressure connection materials:

Pressure psi ranges  
- 316L stainless steel

Differential psid ranges  
- Nickel-plated brass<sup>(9)</sup>

Pressure and differential inches of water ranges  
- Epoxy coated carbon steel



### 1 - ENCLOSURE

- B4** - Pressure switch, type 400, watertight enclosure meets NEMA 3, 4, 4X and 13, IP66 requirements
- D4** - Differential pressure switch, type 400, watertight enclosure meets NEMA 3, 4, 4X and 13, IP66 requirements

### 2 - SWITCH ELEMENTS

Order Code	Description/Maximum Electrical Ratings UL/CSA Listed SPDT	
20 <sup>(4)</sup>	Narrow deadband	15A, 125/250 Vac
21 <sup>(9)</sup>	Ammonia service	5A, 125/250 Vac
22 <sup>(3)</sup>	Hermetically sealed switch, narrow deadband	5A, 125/250 Vac
23	Heavy duty ac	20A, 125/250 Vac
24 <sup>(1)</sup>	General purpose	15A, 125/250/480 Vac 1/2A, 125 Vdc 1/4A, 250 Vdc
25	Heavy duty dc	10A, 125/ Vac or dc 1/8HP 125/ Vac or dc
26 <sup>(4)</sup>	Sealed environment proof	15A, 125/250 Vac
27	High temp. 300°F	15A, 125/250 Vac
28	Manual reset trip on increasing	15A, 125/250 Vac
29	Manual reset trip on decreasing	15A, 125/250 Vac
31	Low level (gold) contacts	1A, 125/250 Vac
32	Hermetically sealed switch, general purpose	11A, 125/250 Vac 5A, 30 Vdc
50	Variable deadband UL/CSA Listed Dual SPDT <sup>(2)</sup>	15A, 125/250 Vac
61 <sup>(4)</sup>	Dual narrow deadband	15A, 125/250 Vac
62 <sup>(4)</sup>	Dual narrow environment proof	15A, 125/250 Vac
63	Dual high temp. 300°F	15A, 125/250 Vac
64	Dual general purpose	15A, 125/250/480 Vac 1/2A, 125 Vdc 1/4A, 250 Vdc
65	Dual ammonia service	5A, 125/250/480

### 3 - ACTUATOR SEAL<sup>(7)</sup>

Code & Material	Process Temp. <sup>(6)</sup> Limits °F	Range			
		Vac in. H <sub>2</sub> O	0-600 psi	1000 psi	2000- 3000 psi
B-Buna N	0 to 150	●	●	●	●
V-Viton	20 to 300	●	●	●	
T-Teflon	0 to 150	●	●	●	●
S-SS <sup>(10)</sup>	0 to 300		●	●	
P-Monel <sup>(5)</sup>	0 to 300		●	●	

### 4 - OPTIONS

(See pages 229-230)

### 5 - STANDARD PRESSURE RANGES

(See page 226)

### NOTES:

1. Standard switch.
2. Dual switches are 2 SPDT snap-action switches not independently adjustable.
3. Estimated dc rating, 2.5A, 28 Vdc (not UL listed).
4. Estimated dc rating, .4A, 120 Vdc (not UL listed).
5. Available on pressure only.
6. Ambient operating temperature limits -20 to 150°F, all styles. Setpoint shift of ±1% of range per 50°F is normal. Switch calibrated at 70°F reference.
7. Items are wetted by process fluid.
8. Refer to Option Table.
9. Order Option XUD, stainless steel process connection.
10. On differential switches, stainless steel is available in 15, 30, 60 and 90 psid ranges only. Includes Teflon O-ring and 316 SS connection.

### TO ORDER THIS B-SERIES PRESSURE SWITCH:

**Select:**

1. Enclosure: \_\_\_\_\_ **B4**    **20**    **B**    **XPK**    **600 psi**

2. Switch Element: \_\_\_\_\_

3. Actuator Seal: \_\_\_\_\_

4. Options (See pages 229-230): \_\_\_\_\_

5. Pressure Range (See page 226): \_\_\_\_\_

**HERMETICALLY SEALED SWITCH**  
We recommend hermetically sealed switch elements for improved reliability. The hermetically sealed switch provides uncompromising contact protection in harsh or corrosive environments. The Ashcroft 400 Series is also approved for installation in Division II hazardous areas when supplied with hermetically sealed contacts.

- Features:
- UL-recognized component, guide WSQ2, File E85076
  - All-stainless steel welded construction





## Nominal Ranges and Deadbands Pressure and Temperature Switches, B-Series

PRESSURE/VACUUM SWITCHES									
Nominal Range <sup>(1)</sup>			Overpressure Ratings		Approximate Deadband <sup>(2)</sup> Switch Element (Buna-N Diaphragm)				
			Proof psi	Burst psi	20, 26, 27	21, 24, 31	50	22	32
<b>Vacuum</b>									
-30 in.Hg	-760 mmHg	-100 kPa	500	1000	0.3-0.7	1.5-4.0	0.5-2.2	0.4-1.5	2.1-4.2
<b>Compound</b>									
-15 in.H <sub>2</sub> O/ 15 in.H <sub>2</sub> O	-375 mmH <sub>2</sub> O/ 375 mmH <sub>2</sub> O	-3.7 kPa 3.7 kPa	20	35	0.15-0.75/ 0.15-0.75	1.5-2.5/ 1.5-2.5	.45-2.0/ 0.45-2.0	0.5-1.2/ 0.5-1.2	2.1-3.5/ 2.1-3.5
-30 in.H <sub>2</sub> O 30 in.H <sub>2</sub> O	-760 mmH <sub>2</sub> O/ 760 mmH <sub>2</sub> O	-7.5 kPa 7.5 kPa	20	35	0.30-0.60/ 0.30-0.60	1.5-2.5/ 1.5-2.5	0.45-2.0/ 0.45-2.0	0.5-1.5/ 0.5-1.5	2.1-3.5/ 2.1-3.5
-30 in.Hg/ 15 psi	-760 mmHg/ 1.0 kg/cm <sup>2</sup>	-100 kPa 100 kPa	500	1000	0.5-1.0/ 0.3-0.7	2.0-3.5/ 0.5-2.0	0.75-2.5/ 0.5-1.0	0.7-1.8/ 0.5-1.4	2.8-4.2/ 0.7-2.1
-30 in.Hg/ 30 psi	-760 mmHg/ 2.0 kg/cm <sup>2</sup>	-100 kPa 200 kPa	500	1000	1.0-1.5/ 0.3-0.8	3.0-6.0/ 1.0-2.0	1.2-4.5/ 0.7-1.5	1.4-2.4/ 0.4-1.3	4.2-8.4/ 1.4-2.8
-30 in.Hg/ 60 psi	-760 mmHg/ 4.0 kg/cm <sup>2</sup>	-100 kPa 400 kPa	500	1000	2.0-3.0/ 0.7-1.5	5.0-9.0/ 3.0-5.0	2.5-7.0/ 1.1-4.0	2.8-4.5/ 1.0-2.3	7.0-12.0/ 4.2-7.0
<b>Pressure</b>									
10 in.H <sub>2</sub> O	250 mmH <sub>2</sub> O	2.5 kPa	20	35	0.2-0.5	1.0-2.0	0.35-1.5	0.4-1.0	1.4-2.8
30 in.H <sub>2</sub> O	750 mmH <sub>2</sub> O	7.5 kPa	20	35	0.3-0.6	1.5-2.5	4.5-2.0	0.5-2.0	2.1-3.5
60 in.H <sub>2</sub> O	1500 mmH <sub>2</sub> O	15 kPa	20	35	0.5-1.3	1.5-3.5	0.9-2.5	0.7-3.0	2.1-5.0
100 in.H <sub>2</sub> O	2500 mmH <sub>2</sub> O	25 kPa	20	35	0.6-1.6	2.5-5.5	1.1-4.0	1.0-4.0	3.5-7.7
150 in.H <sub>2</sub> O	3750 mmH <sub>2</sub> O	37 kPa	20	35	1.0-2.5	4.5-8.5	1.7-6.5	2.0-6.0	6.0-12.0
15 psi	1.0 kg/cm <sup>2</sup>	100 kPa	500	1500	0.1-35	0.5-1.5	0.2-1.0	0.4-1.0	0.7-2.1
30 psi	2.5 kg/cm <sup>2</sup>	200 kPa	500	1500	0.1-50	0.5-1.5	0.3-1.0	0.4-1.0	0.7-2.1
60 psi	4.0 kg/cm <sup>2</sup>	400 kPa	500	1500	0.3-1.0	1.0-3.5	0.7-2.5	0.6-2.0	1.4-5.0
100 psi	7.0 kg/cm <sup>2</sup>	700 kPa	1000	3000	0.5-1.7	1.5-5.0	1.1-3.5	1.0-4.5	2.1-7.0
200 psi	14 kg/cm <sup>2</sup>	1400 kPa	1000	3000	1-3	5-13	2-9	3.0-7.5	7.0-18.2
400 psi	28 kg/cm <sup>2</sup>	2800 kPa	2400	3000	4-7.5	5-24	5.5-15	4.0-11.0	7.0-33.6
600 psi	42 kg/cm <sup>2</sup>	4200 kPa	2400	3000	4-11	9-30	7-20	5.0-23.0	12.6-42
1000 psi <sup>(8)</sup>	70 kg/cm <sup>2</sup>	7000 kPa	12000	18000	7-30	30-110	18-70	15.0-60	42-154
3000 psi	210 kg/cm <sup>2</sup>	21000 kPa	12000	18000	15-60	80-235	37-160	30.0-130.0	112-329

DIFFERENTIAL PRESSURE SWITCHES									
Nominal Range <sup>(1)</sup>			Overpressure Ratings		Approximate Deadband <sup>(2,4)</sup> Switch Element (Buna-N Diaphragm)				
			Static psi	Proof psi	20, 26, 27	21, 24, 31	50	22	32
30 in.H <sub>2</sub> O <sub>d</sub>	750 mmH <sub>2</sub> O	7.5 kPa	5.4	21.6	0.3-0.6	1.5-2.5	0.45-2.0	0.5-2.0	2.1-3.5
60 in.H <sub>2</sub> O <sub>d</sub>	1500 mmH <sub>2</sub> O	15 kPa	5.4	21.6	0.5-1.3	1.5-3.5	0.9-2.5	0.7-3.0	2.1-5.0
100 in.H <sub>2</sub> O <sub>d</sub>	2500 mmH <sub>2</sub> O	25 kPa	5.4	21.6	0.6-1.6	2.5-5.5	1.1-4.0	1.0-4.0	3.5-7.7
150 in.H <sub>2</sub> O <sub>d</sub>	3750 mmH <sub>2</sub> O	37 kPa	5.4	21.6	1.0-2.5	4.5-8.5	1.8-6.5	2.0-6.0	6.3-12.0
15 psid	1 kg/cm <sup>2</sup>	100 kPa	500	2000	0.5-1.0	2.0-5.0	0.7-3.5	0.7-1.4	2.8-7.0
30 psid	2.5 kg/cm <sup>2</sup>	200 kPa	500	2000	1.0-2.0	2.0-5.0	1.5-3.5	1.4-2.8	2.8-7.0
60 psid	4 kg/cm <sup>2</sup>	400 kPa	500	2000	2.0-4.0	3.0-6.0	3.0-4.5	2.8-5.6	4.2-8.5
100 psid	7 kg/cm <sup>2</sup>	700 kPa	1000	4000	4.0-10.0	11.0-20.0	7.0-15.0	6.0-14.0	16.0-28.0
200 psid	14 kg/cm <sup>2</sup>	1400 kPa	1000	4000	5.0-15.0	12.0-40.0	10.0-86.0	7.0-21.0	17.0-56.0
400 psid	28 kg/cm <sup>2</sup>	2800 kPa	1000	8000	10.0-20.0	20.0-60.0	15.0-40.0	14.0-28.0	28.0-84.0
600 psid	42 kg/cm <sup>2</sup>	4200 kPa	1000	8000	20.0-40.0	80.0-150.0	30.0-115.0	30.0-56.0	112.0-210.0

TEMPERATURE RANGE SELECTION									
Adjustable Range		Max. Temp. °F	Approximate Deadband <sup>(6)</sup> Switch Element						
°F	°C		20, 26, 27	21, 24, 31	50	22	32		
-40 to 60	-40 to 16	400	1.0-2.0	3.0-8.0	1.5-5.5	1.4-6.0	8.0-16.0		
0 to 100	-20 to 40	400	1.5-3.0	5.0-12.0	1.5-7.5	9.0-20.0			
75 to 205	20 to 95	400	1.5-3.5	8.0-16.0	2.0-9.0	10.0-24.0			
150 to 260	65 to 125	400	1.5-3.0	5.0-12.0	2.0-9.0	10.0-24.0			
235 to 375	110 to 190	500	1.5-3.5	5.0-12.0	2.0-9.0	10.0-24.0			
350 to 525 <sup>(7)</sup>	175 to 275	700	2.0-4.5	8.0-16.0	3.2-12.0	2.5-10.0	15.0-34.0		
500 to 750 <sup>(8)</sup>	260 to 400	900	4.0-8.0	16.0-30.0	7.0-24.0	5.0-23.0	30.0-50.0		

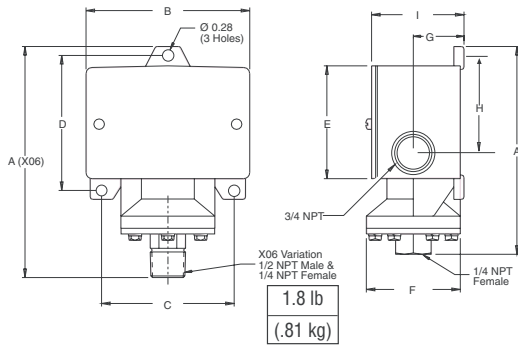
**NOTES:**

- Switches may generally be set between 15% and 100% of nominal range on increasing pressure. Consult factory for applications where setpoints must be lower.
- All deadbands are given in English units as shown in the nominal range column. Deadbands shown are for switches with Buna N diaphragm.

- Approximate deadbands for optional diaphragms:
- Viton: Multiply Buna N value by 1.4
  - Teflon: Multiply Buna N value by 1.2
  - Stainless Steel: Multiply Buna N value by 1.7
  - Monel: Multiply Buna N value by 1.7
- Available with remote mount thermal system only.

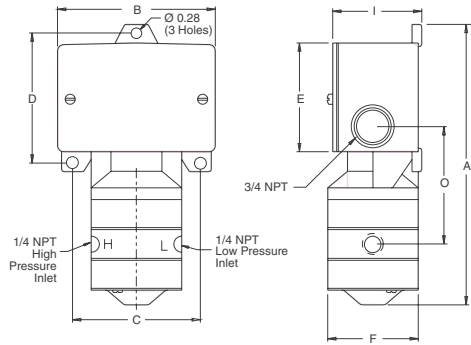
- Deadbands given are for zero static working pressure.
- For approximate deadbands for dual switch elements, multiply the single switch element by 1.6.
- All deadbands given in °F.
- Not available with 2 3/4" stem.
- Proof pressure is 4000 psi with stainless steel and monel welded diaphragms.

## Pressure switch – psi ranges



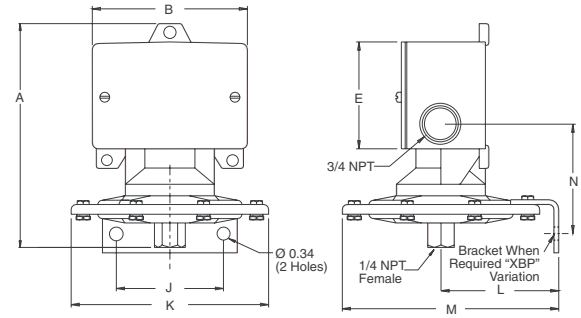
A (X06)	A	B	C	D	E	F	G	H	I
5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>8</sub>	4	3 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	2 <sup>13</sup> / <sub>32</sub>	2 <sup>5</sup> / <sub>16</sub>
(149)	(130)	(102)	(83)	(84)	(70)	(59)	(32)	(61)	(59)

## Differential pressure switch – psi differential ranges



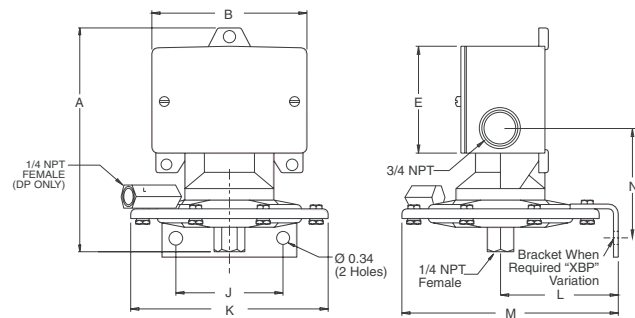
A	B	C	D	E	F	I	O	Weight
7 <sup>7</sup> / <sub>2</sub>	4	3 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>16</sub>	3	3.6 lb
(182)	(102)	(83)	(84)	(70)	(59)	(59)	(56)	(1.6 kg)

## Pressure switch – inches of water ranges



A	B	E	J	K	L	M	N	Weight
5 <sup>25</sup> / <sub>32</sub>	4	2 <sup>3</sup> / <sub>4</sub>	2 <sup>25</sup> / <sub>32</sub>	5 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	5 <sup>11</sup> / <sub>16</sub>	2 <sup>27</sup> / <sub>32</sub>	2.7 lb
(147)	(102)	(70)	(71)	(130)	(78)	(145)	(72)	(1.2 kg)

## Differential pressure switch – inches of water ranges



A	B	E	J	K	L	M	N	Weight
5 <sup>25</sup> / <sub>32</sub>	4	2 <sup>3</sup> / <sub>4</sub>	2 <sup>25</sup> / <sub>32</sub>	5 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	5 <sup>11</sup> / <sub>16</sub>	2 <sup>27</sup> / <sub>32</sub>	2.7 lb
(147)	(102)	(70)	(71)	(130)	(78)	(145)	(72)	(1.2 kg)