ASHCROFT®
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Ashcroft® Switches

PIP #: SW-PI-58

Applicable to:

XG3 BELLEVILLE ACTUATOR

The New Ashcroft Belleville Actuator offers improved sales opportunities for the following situations:

A. Applications where vibration is present, causing premature tripping or contact chatter.
B. DPDT switching requirements.
C. Customer is already sold on Belleville Actuator.

DISCUSSION

A. We have been aware of premature pressure switch tripping under vibration conditions. Our experience has been that under constant conditions, the premature trip point is very repeatable and the rugged design of our actuator allows repeatability for hundreds of thousands of cycles under high vibration conditions. If this is not acceptable, then XG3 will reduce the vibration effects to within ±1% of the switch setpoint, even under vibration.

B. Our diaphragm sealed piston design moves from deactuated position to actuated position when pressure gets close to the setpoint. When dual switch elements (2 SPDT) are supplied, it is possible to actuate only one element, while the other remains in the deactuated position. We guarantee they will trip within 1% of range of each other, but this is sometimes unacceptable.
The Ashcroft Belleville Actuator eliminates this situation. Once actuated, the Belleville snaps both switch elements simultaneously, providing DPDT (double-pole, double throw) action.

C. For many years, CCS and Neodyne have offered The Belleville Actuator as standard on their pressure switches. With otherwise somewhat ordinary product lines they have made the Belleville a major element of product differentiation. They have had good success with many customers using this approach, likely because the effects of vibration and the Belleville "solution" are very easy to demonstrate. We have shipped hundreds of thousands of Non-Belleville switches to similar customers, with few application problems. So, option XG3 is, finally, a way to help you meet customer specifications, even if no obvious need for the Belleville is apparent.

FIRE SAFE IS EASY!

XG3 can easily be made fire safe. By adding XG9 to your part number, fire safe can be obtained at nominal additional cost. Consult customer service for the current price of this combination.

Fire Safe design assures that the unrestrained pressure actuator is capable of holding up to 1500 psi at 1100°F. This might be required if the aluminum enclosure were to melt in a fire, leaving only the unrestrained actuator attached to the process.

EFFECT ON DEADBANDS

Switch deadbands are affected by the addition of XG3. Normally, deadbands in our switches are about the same throughout the switch range, varying from lower to higher values as setpoint increases. The Belleville performs just the opposite, starting high, and decreasing through the range. Figure 2 illustrates typical characteristics of several 200 psi models, both with and without the Belleville actuator.

ORDERING INFORMATION

XG3 is available on B4 and B7 series pressure switches ranges 30 psi through 1000 psi, with switch elements 24, 32, 64 and 68.

To order, just add XG3 after your desired part number, similar to those shown on figure 2.

All specifications are subject to change without notice.
All sales subject to standard terms and conditions.
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Figure 1: Belleville Actuator Deadband Comparison with CCS and Neodyne

NEODYN 100P 11A DUAL	
Range (psi)	DB (psi)
5-75	2.7
15-150	6
50-300	14
125-600	25
500-1500	60

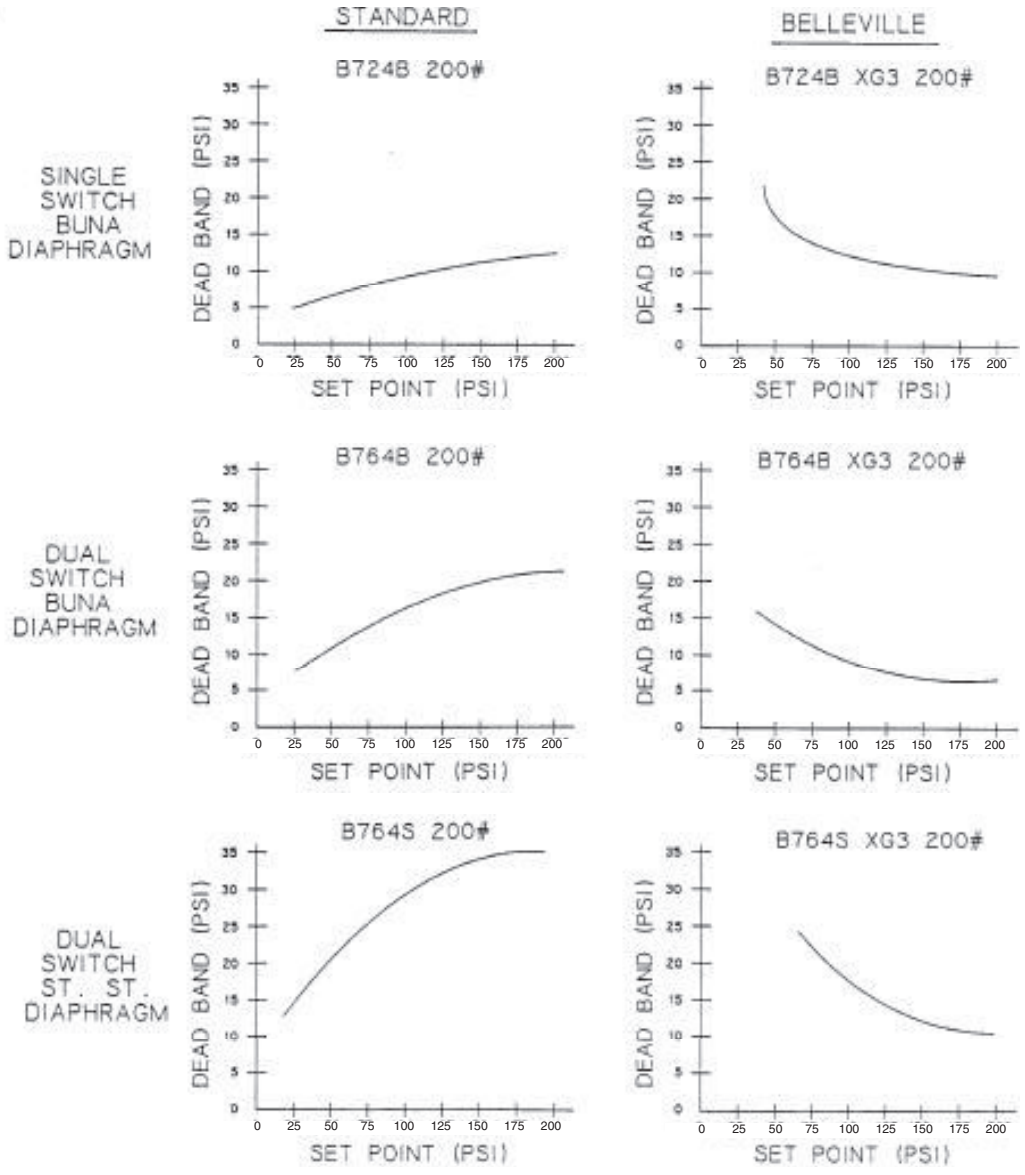
NEODYN 122P 11A DUAL	
Range (psi)	DB (psi)
1-28	2
15-75	5
30-230	20
175-375	25
330-680	45
620-1420	80

CCS 604GM 5A DUAL	
Range (psi)	DB (psi)
.8-18	0.5
6-75	4
12-150	8
30-375	20
300-1000	55

ASHCROFT B764B XG3 15A DUAL	
Range (psi)	DB (psi)
30	1.4-3
60	2.5-5
100	5-9.5
200	7-13
400	14-27
600	30-64
1000	45-118

ASHCROFT B764B STD 15A DUAL	
Range (psi)	DB (psi)
30	.8-2.4
60	1.5-5.6
100	2.4-8
200	8-21
400	8-39
600	14.4-48
1000	48-176

FIGURE 2:
TYPICAL DEADBAND CHARACTERISTICS AS A FUNCTION OF SETPOINT



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