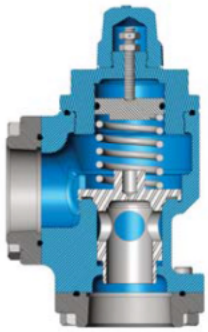
Bypass Valves Precise, On-Line Pressure Protection

BV¾/BV1 BV2



BV2 cutaway

Selection Guide

Model BV¾ (ports are ¾-inch NPT tapped) **Model BV1** (ports are 1-inch NPT tapped) These models are commonly used for cylinder-filling system. Either valve can be used with 1 ¼ or 1 ½-inch Blackmer pump models.
Model BV1 ¼ (ports are 1 ¼-inch NPT tapped) **Model BV1 ½** (ports are 1 ½-inch NPT tapped) These models are normally used for bobtail trucks and smaller bulk plant systems. Either valve can be used with 2 or 3-inch Blackmer pump models. Both valves are available with optional springs for use with the LGL 158 or LGLH2.
Model BV2 (ports have 2-inch NPT companion flanges) The BV2 model is widely used for transports or larger bulk plant systems. It is recommended for use with 3 and 4-inch Blackmer pump models.

Blackmer differential bypass valves are designed to protect pumps and system components from excessive pressure damage, and no LP gas pump installation is complete without one. Blackmer offers five different models that provide full-flow pressure control to 250 U.S. gpm (946 lpm) at 120 psid (8.27 Bar). Installation is easy with NPT tapped ports in sizes from ¾" to 2". All models are suitable for both LP gas and anhydrous ammonia service.

Technical Assistance

In some applications, selecting the right pump or compressor may require more detailed information than can be presented in this bulletin. Your Blackmer representative can help you find the correct equipment to ensure the best performance possible for your specific application.

If you have a unique gas or fluid handling problem, please contact Blackmer at the telephone or fax number listed below.

Maximum flow-through valve

Model	Maximum Rated Flow* - GPM (LPM) @			
	20 PSI (1.38 Bar)	50 PSI (3.45 Bar)	80 PSI (5.52 Bar)	120 PSI (8.27 Bar)
BV1	25 (95)	40 (151)	50 (189)	60 (227)
BV1½	60 (227)	80 (303)	100 (379)	125 (473)
BV2	150 (568)	180 (681)	220 (833)	250 (946)

*Normal maximum bypass flow rates without significantly exceeding the set pressure limit.

In operation, Blackmer valves provide exceptionally close pressure control, even under widely varying bypass flow conditions. The performance curve in Figure 4 below shows how a Blackmer valve maintains a virtually constant pressure of 100 psi (6.89 Bar) even as the volume being bypassed rises from 10 gpm to 100 gpm (38-378 lpm). Although the curve is that of a BV1½" valve, the precision it demonstrates is typical of any Blackmer valve.

Blackmer bypass valves have no small, easily plugged, sensing passages; and with only two moving parts, their operation is simple and reliable. They open precisely at the preset spring pressure, and they close smoothly and quietly, thanks to a patented dash-pot design. As shown in Figure 5, a small chamber in the valve stem fills with liquid when the valve opens. This liquid then provides a hydraulic cushion preventing the valve from slamming shut if pressure is suddenly released. It also minimizes chatter and valve seat wear when pressures hover around the crucial limit.

FIGURE 4. Bypass volume/pressure curve BV1 ½

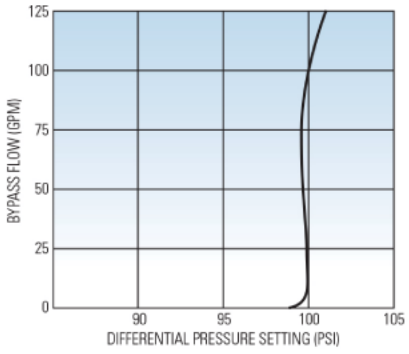
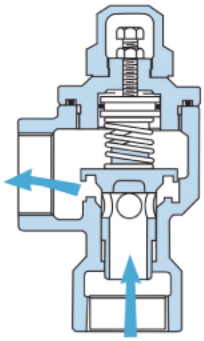


FIGURE 5. Bypass valve operation



Dash-pot chamber cushions closing of valve

DMC 多美時燃氣設備有限公司
DMC GAS EQUIPMENT LIMITED

Address: Unit 11, 11/F, Tower One, Ever Gain Plaza
88 Container Port Road, Kwai Chung, NT, Hong Kong
Website: www.dmc-gas.com Email: dmcsaleshk@dmc-gas.com.hk
Tel: +852 2851 2121 Fax: +852 2851 2129

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