

**Bulletin Number:** 11-05-02

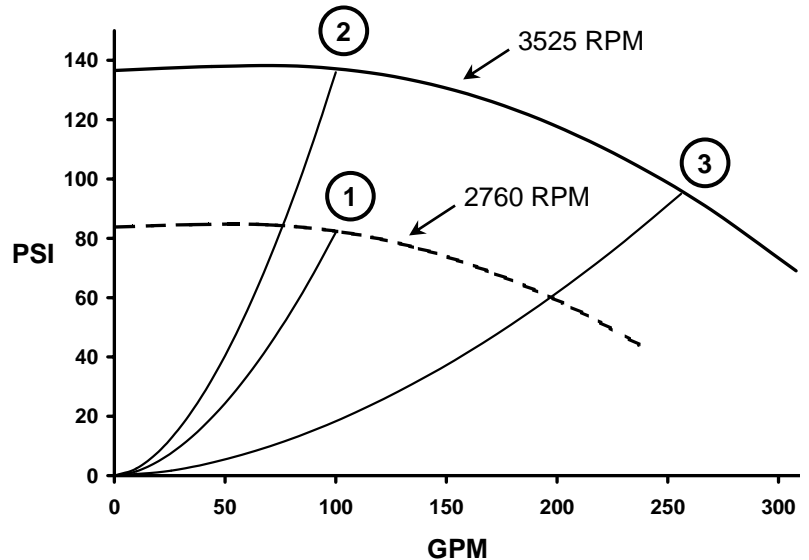
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**Title: BoosterpaQ PSV Bypass Option**

To: Grundfos BoosterpaQ Partners

Although Variable Frequency Drives (VFDs) have become very reliable in the past decade, there are instances when a drive will go off line. Problems with the incoming power supply or pump failure may cause a drive to go off line. In the event that this happens, the pumps may be operating at 100% speed which will result in a discharge pressure greater than the desired set-point. To protect the plumbing system from excessive pressure, a Pressure Sustaining Valve (PSV) bypass assembly can be installed on the BoosterpaQ. The setting on the PSV will be some value that is higher than the set-point but safe for the buildings' plumbing system.



Consider a BoosterpaQ maintaining 80 psi at a flow rate of 100 gpm (curve 1). If the VFD goes off line the next pump in sequence will be started across the line (full speed) which would can result in a discharge pressure of 135 psi (curve 2). But with a bypass PSV set to open at 95 psi, the PSV will open up to allow additional flow through the system which will result in a discharge pressure of 95 psi (curve 3).

**Example**

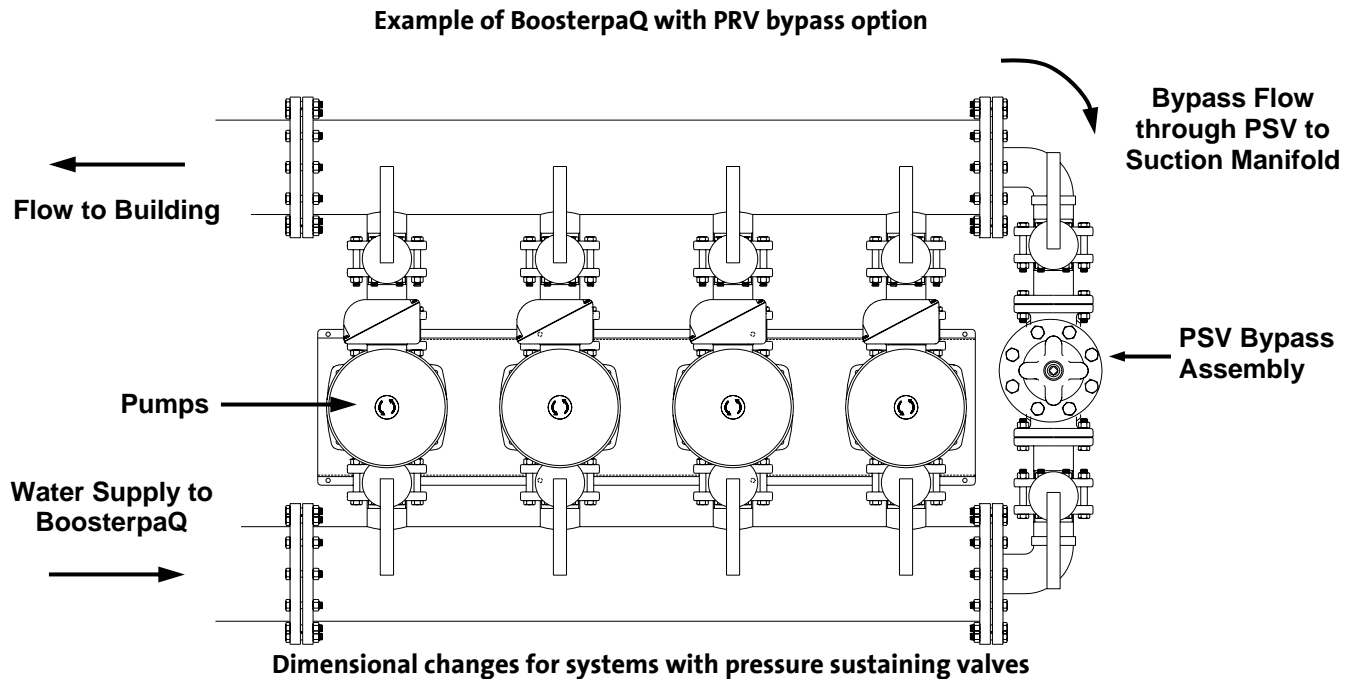
System Setpoint:	80 psi
Maximum Allowable Building Pressure:	115 psi
PSV Setting:	95 psi

Since the building only requires 100 gpm at this point, the additional flow will flow though the PSV back to the suction manifold. All Grundfos BoosterpaQs have automatic reset functions so that most intermittent power problems (resulting in VFD trips) are corrected quickly.

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A factory installed PSV will add length to the system. The standard configurations are as follows:

BoosterpaQ systems are supplied in three main configurations:

- > On a common base (control panel and pumps on a single base frame)
- > On a “split base” (pumps on one base frame and the control panel on another base frame with panel stands)
- > With a “free standing” panel (control panel for floor mounting) and pumps on their own base frame

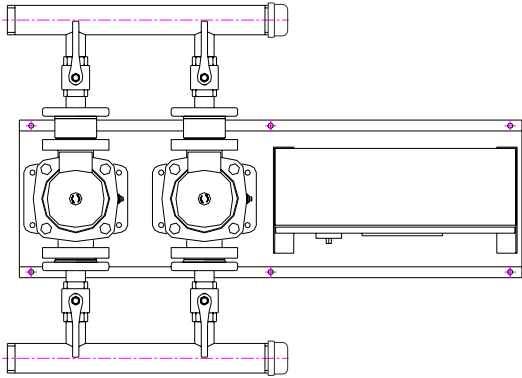
### 1. Systems on a common base (2 and 3 pump systems)

For BoosterpaQ systems with small (CR3/5) and medium (CR10/15/20) size pumps with two and three pumps, the base frame for the next higher number of pumps will be used for those systems that come standard on a single base frame. For example if a two pump system with CR10 pumps was requested with the PSV option, the base frame for a 3-pump CR10 system will be used (**see figures 1 & 2**).

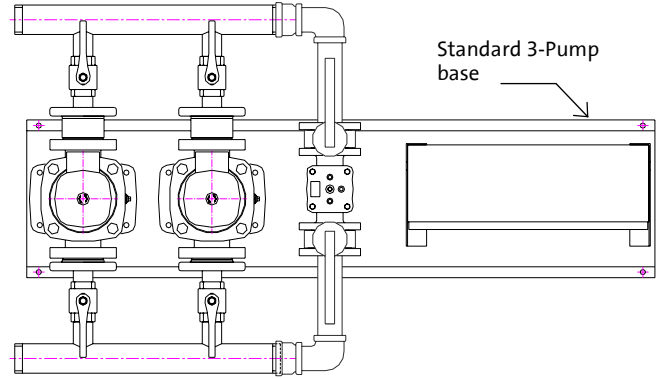
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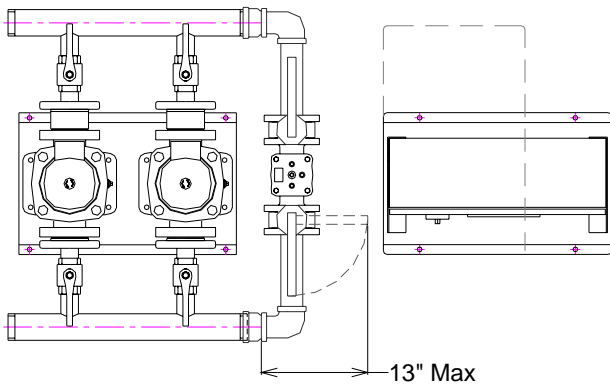


**Figure 1**  
Standard 2-Pump w/Panel

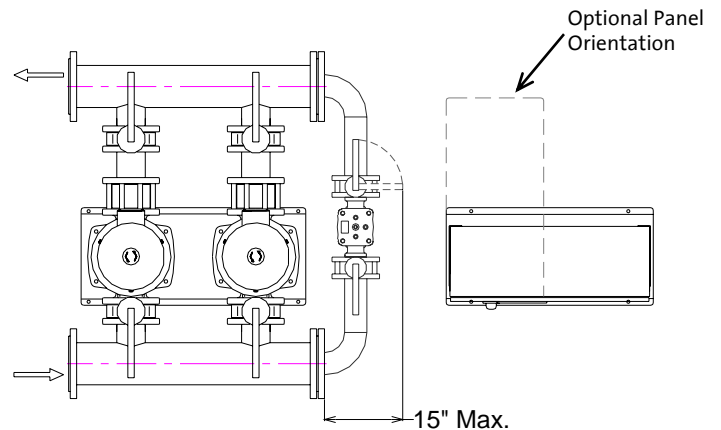


**Figure 2**  
2-Pump PSV w/Panel

On request, the control panel can be supplied on its own base (one reason may be that the longer base frame will not fit in the space provided). This layout is shown in **Figure 3**. If the BoosterpaQ is a four pump system on a common base, the control panel will be supplied on its own base as shown. The additional length required for these systems will typically not be more than 13 inches (including valve handle allowance).



**Figure 3**  
Optional PSV Layout Small and Medium CR



**Figure 4**  
PSV Layout Large CR pumps

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## 2. Systems with split bases or free standing control panels

All BoosterpaQ systems with Large (CR 32/45/64/90) pumps come standard with split base and free standing panel configurations (see **Figure 4**). The additional length will typically not be more than 15 inches.

**Note:** Certified Drawings can be supplied for construction purposes once an order is received.