PP4-Safety Shear Valve System

Installation recommendations

This system is intended for and validated for the purpose of protecting LPG liquid piping from catastrophic release in the event of a dispenser knock over. Installing in a manner other than that prescribed here-in, will result in voiding of warranty. Parafour, its affiliates and representatives accept no liability for incorrect installation or maintenance.

Overview: The P4-Safety System uses industry proven LPG shear valves, this is a sacrificial safety system, meaning that it cannot be reconnected after break-away. The systems works by installing in proper position, with the shear point level with the base of the dispenser cabinet, and not touching any portion of the cabinet. With an impact resulting in either lateral movement, or a tilting moment equal to or more than 15 degrees, the outer sleeve of the shear valves will break and separate, and the internal spring loaded check valves will close, resulting in minimal loss of product.
DO NOT attempt to repair or fabricate replacement parts locally. This is a precision machined and validated product. Any attempt to alter or replicate the design will result in voiding of warranty. Once the components have been separated, or subjected to abnormal torque, they must be sent to Parafour for testing and or remanufacturing.

The illustration below shows the safety shear valve, before and after separation.

1. Supply and return piping MUST be ¾” sections for a sufficient length to facilitate adequate securing to prevent movement. The shear valves may not separate properly if the interconnecting piping is not properly secured. Parafour recommends minimum ¾” piping from the pump and tank for all dispenser applications.
2. Using one of the templates provided, mark the position of the dispenser connections for liquid inlet and vapor return. Positioning is critical for proper operation.
3. The system may be installed with a dispenser mounted in the following ways (See recommended mountings for each type at end of document):
   a. On a skid frame (typical 3’ in height) with an elevation spacer (typically 2-3” in height). The dispenser must be elevated sufficient to allow for correct positioning of the shear valves as indicated herein. The shear point should be within +/- 1.5” of level with the dispenser base. The piping connected to the shear valve must be sufficient to prevent pipe movement. The connecting piping must be secured to the skid frame. Securing may be accomplished with “Uni-Strut” components, pipe clamps or u-bolts. The piping connected to the shear valve must be secure sufficient to prevent pipe movement.
   b. On an island or remote mount with buried piping. In this case, the piping must be secured to a pit opening under the dispenser (typically a metal frame or formed concrete). The shear point should be within +/- 1.5” of level with the dispenser base. Securing may be accomplished with “Uni-Strut” components, pipe clamps or u-bolts. The piping connected to the shear valve must be secure sufficient to prevent pipe movement.
   c. On a pad or island with the supply and return piping cast into the supporting concrete. In this method, the piping should be sufficiently supported through its positioning in the concrete.

4. Using the brackets and hardware supplied (see below for model specific kits) affix the brackets securely to the meter frame as indicated in the photographs herein.

5. Connect the supplied flex hose assemblies to the bracket pipe fittings as indicated in the photographs.
6. Using the supplied swivel fittings install the shear valves connecting to the flex hose supported by the supplied bracket, and to the secured supply and return piping.
7. Once installed the shear valve should be vertical, and should be rigid in position with NO binding or preload on either end. It should basically float freely, secured in place by the inlet and outlet piping which is secured.

8. **DO not use a wrench on the pipe section (with the shear point) of the valve.** DO NOT use a wrench on the connecting pipe and fittings unless using a backing wrench on the adjacent hex surfaces of the shear valve. Incorrect use of tools and tightening technique resulting in valve damage are **NOT** covered under warranty.

9. Connect the vapor return copper tubing provided, from the vapor return mini –valve fitting at the meter, to the 3/8” flare fitting in the safety system support bracket fitting. Tighten securely. (Note that this tubing may require bending or forming to fit different models.)
10. Once the system is completely installed, all connections should be leak checked using non-ammonia solution or a pressure decay test. Ensure that there are no leaks. Ensure that the shear valves are not stressed or under load.

For questions regarding installation, or tech support, Please call:

Parafour Innovations, LLC at

512-686-4099
P4-Safety System

Recommendations for Island or Pad mounting

Shear Valve Shear point Location = +/- 1.5" of

Concrete Set Method

Dispenser Mounting Pit

Dispenser Base

Unistrut Clamp Method
P4-Safety System

Recommendations for mounting with Skid frame dispenser application

Recommended
MAX 7"
MIN 5"

+/− 2"
MIN 3"

Dispenser Bottom
Spacer
Grade

SKID Frame Mounting

Typical 3" SKID Frame
P4-100 & P4-150 Model Installation Photos
P4-200 Installation Photos