

November 2023

RegO[®] Field Topics

Internal Valve operation and maintenance

Field Topics are intended to provide useful information to the network of authorized LP-Gas and Anhydrous Ammonia distributors regarding the proper use of RegO[®] products. **Warning Bulletins** covering many of the hazards involved are available from RegO for more detailed information. These bulletins can be found in our **L-500, L-102 and NH3-102** catalogs. Neither the Field Topic or the Warning Bulletins are intended to conflict with federal, state, or local ordinances and/or regulations, which should be observed at all times. This information also is not intended to be a substitute for or to supplement any training in the safe handling and use of propane and related equipment, as required by any applicable law. By providing this material, ECI assumes no responsibility for providing any such training. Only individuals properly trained in the safe handling and use of propane and related equipment should be permitted to do so, and by providing this information, ECI does not assume responsibility for providing such training.

For more information on LP Gas system requirements, refer to Liquefied Petroleum Gas Code (NFPA 58), National Fuel Gas Code (NFPA 54), National Propane Gas Association Safety Handbook, the RegO LP-Gas Serviceman's Manual L-545, RegO catalogs L-500/L-102/NH3-102, ANSI K61.1 Safety Requirements for Storage and Handling of Anhydrous Ammonia, as well as any applicable local codes and ordinances.

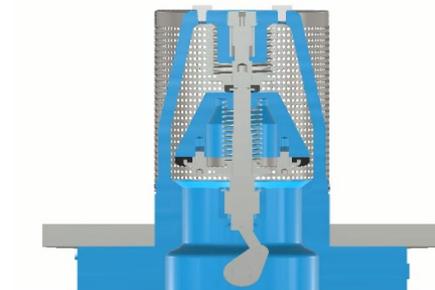
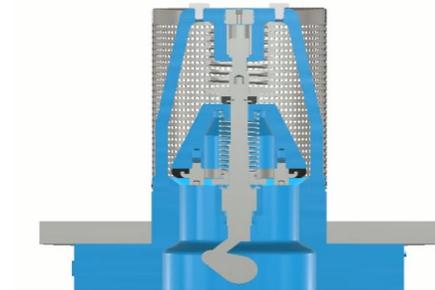
General Information

Manual Internal Valves are designed for a variety of uses in LP-Gas and anhydrous ammonia service. In addition, accessories allow most of them to be actuated manually, by cable or with air. Installation, usage and maintenance of this product must be in compliance with all RegO instructions, as well as requirements and provisions of NFPA # 58, DOT, ANSI, and all applicable federal, state, provincial, and local standards, codes, regulations and laws. These valves must remain in the closed position except during product transfer. A line break downstream of the pump may fail to actuate the excess flow valve as the pump may limit flow. If break occurs in the system, or the excess flow closes, immediately shut down the system. Inspection and maintenance on a periodic basis is essential. Installation and maintenance must be performed only by qualified personnel. Be sure all instructions are read and understood before installation and operation of these valves.

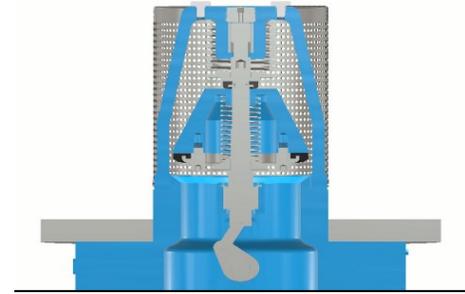
How The Valves Work

Refer to the drawings. View "A" shows the valve held closed without leakage by tank pressure and the valve's closing spring. Actuation of the operating handle alone does not open the valve, it only allows pressure to equalize between the inlet and outlet of the valve by rapid bleeding of the product downstream. This equalized pressure then allows the valve to open via the internal spring.

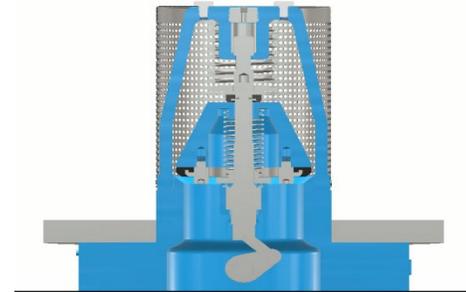
The valve opens by moving the handle to mid-point, see View "B". This position allows the actuator to put the equalizing portion of the valve stem in the pilot opening, allowing more product to bleed downstream than if the handle was fully open. In a few seconds, the tank and downstream pressure will be nearly equal. The excess flow spring will push the main poppet to the open position,



View “C”, the handle should then be moved to the fully open position. If at first, the handle is quickly moved to the fully opened position, the pilot valve allows a small amount of bleed downstream, but much less than during rapid bleed (view “B”). This results in a longer pressure equalizing time before the main poppet can open. NOTE: The main poppet will not open until outlet pressure approximates tank pressure! Once the main poppet is open, flow greater than the excess flow rating, or a sufficient surge in flow, forces the main poppet closed against the excess flow spring.



View “D”. The pilot valve in this position is open and allows a small amount of bleed downstream, but much less than during rapid bleed (view “B”). When the operating handle is moved to the closed position, the valve closes and a leak-tight seal is re-established as seen in view “A”.



NOTE: To provide excess flow protection, the flow rating of the pump, piping, valves, fittings, and hose on the inlet and outlet sides of the valve must be greater than the flow rating of the valve. Any restrictions that reduce the flow to less than the excess flow valve rating will result in the excess flow valve not operating when required. Valve Operation and Precautions 1. Valve must be opened before starting pump, and before opening valve on pump outlet. 2. Leave pumping system “wet” to avoid drying of seals and to reduce time involved in opening valve. Drain piping only when required by codes or safe operating practices. 3. When piping is dry or at lower pressure than the tank, open valve half-way for a few seconds to allow line pressure to equalize before fully opening the valve handle. The main poppet may not open immediately if the handle is placed in the open position too quickly. 4. Flow surges may close the built-in excess flow valve and should be avoided. If the valve slams shut, immediately stop the pump, close the nearest downstream valve, and move handle to midpoint position to equalize pressure until valve reopens with a click, then restart pump and open downstream valve slowly. 5. Always keep valve closed except during product transfer. 6. Completely open all valves during pumping. Partially closed or throttle type valves may prevent excess flow valve from closing when required, even in a properly designed piping system. 7. All personnel must be aware of remote closure locations and their operation in case of emergency. They must also be aware of the equalizing opening through which bleeding can occur after the excess flow valve closes. If this bleed is not stopped by closing a downstream valve, a hazard may occur. 8. Never, under any circumstances, permanently wire open the operating handle of the internal valve.

Maintenance

Potential problems may be eliminated with preventive internal valve maintenance. Perform the following steps once a month: 1. Check to see that the operating lever moves freely and smoothly. There should be no leakage around the lower stem or seal housing. Leakage requires replacement of the seal housing packing. A sticking lever indicates trapped foreign material or mechanism wear. 2. Check both seat discs for tight closure. Close valve and exhaust downstream pressure. Be sure piping is warmed to an ambient temperature. Close the first downstream valve and note pressure buildup between the closed valves with a pressure gauge. If leakage occurs, replace both seat discs. 3. Inspect, clean and oil all operating controls. Check controls to see that they open fully, but do not overtravel the valve operating lever. See that they work freely to close the valve. Worn parts should be replaced. 4. Remove valve if the tank is to be steam cleaned. Heat may damage the valve’s seals. 5. Valve is not designed for water service. After tank is hydrostatically tested, immediately remove all water and allow tank to thoroughly dry out before installing valve

