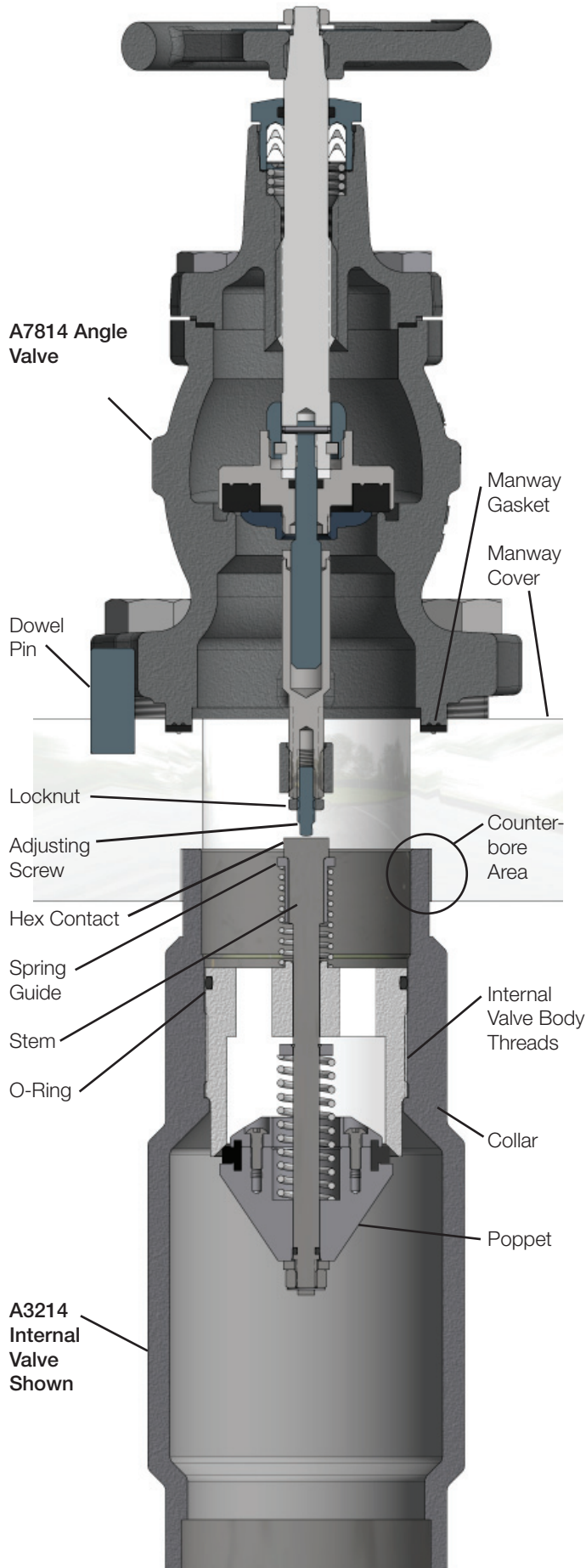


TA7814 Tank Car Valve & Internal Excess Flow Valve
Figure 1



TA7814 Tank Car Valve with A7814 Angle Valve with A3214 or A3214J Internal Excess Flow Valve

Installation & Operation

WARNING: Installation, disassembly, repair and maintenance must be performed only by qualified personnel.

All gas MUST be evacuated from the system before starting repairs.

Installation, usage and maintenance of this product must be in compliance with all RegO® instructions as well as requirements and provisions of NFPA #54, NFPA #58, DOT, ANSI, all applicable federal, state, provincial and local standards, codes, regulations and laws.

Inspection and maintenance on a periodic basis is essential.

Be sure all instructions are read and understood before installation, operation and maintenance. These instructions must be passed along to the end user of the product.

CAUTION: Contact or inhalation of liquid propane, ammonia and their vapors can cause serious injury or death! NH₃ and LP-Gas must be released outdoors in air currents that will insure dispersion to prevent exposure to people and livestock. LP-Gas must be kept far enough from any open flame or other source of ignition to prevent fire or explosion! LP-Gas is heavier than air and may not disperse or evaporate rapidly if released in still air.

Assembly of A3214 or A3214J Internal Excess Flow Valve
See Figures 1 & 2

Internal Valve Measurement Check

1. Fixture and/or clamp collar into the manway cover counterbore.
2. Thread the Internal Valve body and poppet assembly into the collar and hand tighten until it bottoms out, indicating full engagement.
3. Measure from the top of the manway cover to the top face of the hex contact, see distance "A". "A" should measure between 1.665" min and 1.725" max if the Internal Valve is properly installed.
4. If "A" distance is not correct, recheck that the body and poppet assembly was installed correctly in the collar, reposition the collar to obtain the correct "A" dimension.

NOTE: There is no adjustment allowed to the Internal Excess Flow Valve.

Internal Valve Installation

5. Remove the body and poppet assembly from the collar, then weld collar into place.

NOTE: Ensure that collar bottoms out in the counterbore and that the collar centerline axis maintains concentricity with the counterbore centerline axis. Also, weld in a manner that does not damage or distort the internal threads of the collar.

6. Lubricate the o-ring with Parker Super O-Lube® or equivalent fluorinated grease and install into o-ring groove of Internal Valve.
7. Apply removable thread locker Loctite 242® to the male threads of the body. Thread the body and poppet assembly into the collar and hand tighten to full engagement. Once the assembly bottoms out against the internal stop in the collar, no further torque is required or recommended.

NOTE: No thread-locking compound can be transferred to the o-ring.

Assembling the A7814 Angle Valve

See Figures 1 & 2

Angle Valve Measurement Check

8. Measure from the bottom of the Angle Valve's grooved surface to the bottom of the adjusting screw, see distance "B". "B" should measure between 1.540" min and 1.587" max, as preset by factory.

NOTE: This check is to verify distance "B" did not change during shipping or handling of the valve.

If distance "B" does not fall within the specified range, loosen the locknut, then adjusting screw until "B" distance is achieved. Hold adjusting screw and tighten locknut. Verify that the distance is unchanged after tightening the locknut. This will provide the necessary clearance needed for proper operation of the valve.

Angle Valve Installation

NOTE: Verify that the Angle Valve assembly is fully closed.

9. Apply high quality non-detergent grease to the bottom of the adjusting screw of the globe valve before installing onto the manway cover.
10. Install manway gasket (not provided) then, install the Angle Valve on the manway cover carefully aligning with dowel pin in manway and attach using 4-7/8" cap screws (not provided). Tighten to ensure a leak tight joint.
11. Pressurize the system to systematically check all valves, joints, connections and seals to verify leak tight connections are intact using a high quality leak detection solution.

Filling and Withdrawal of Product

See Figure 3

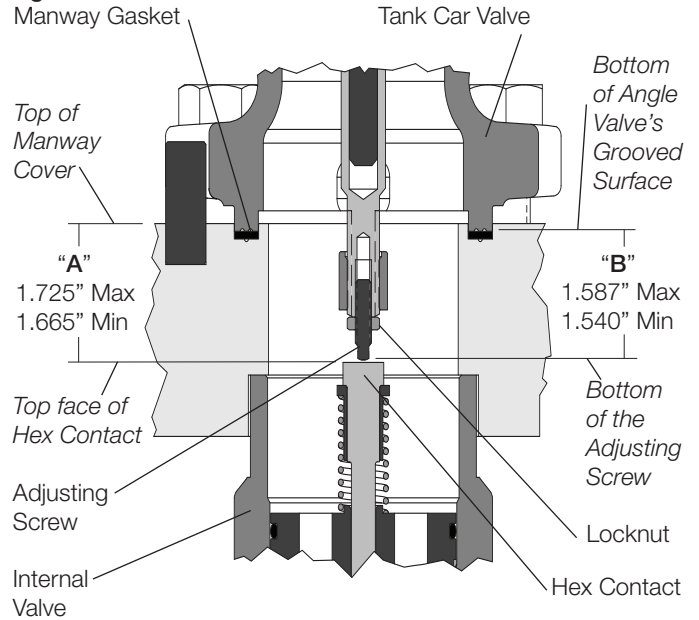
Please read and follow all instructions regarding filling and withdrawal of product from the container utilizing the A7814 Angle Valve and A3214-L2, A3214-V2, EA3214-L2 or EA3214-V2 Internal Excess Flow Valve.

If the filling or withdrawal instructions are not explicitly followed then the Internal Valve's excess flow feature will activate. Improper usage resulting in repeated closing of the Internal Valve during filling, evacuating or disconnecting will cause significant damage to the valve's seat.

The filling and withdrawal instructions are show in Figure 3.

To fully understand how the excess flow feature works please see explanation and Figure 4. This explains how the valve is designed to operate in the four possible conditions.

TA7814 Tank Car Angle Valve & Internal Excess Flow Valve
Figure 2



Proper clearance must be held between the Angle Valve's adjusting screw and the Internal valve's hex contact.

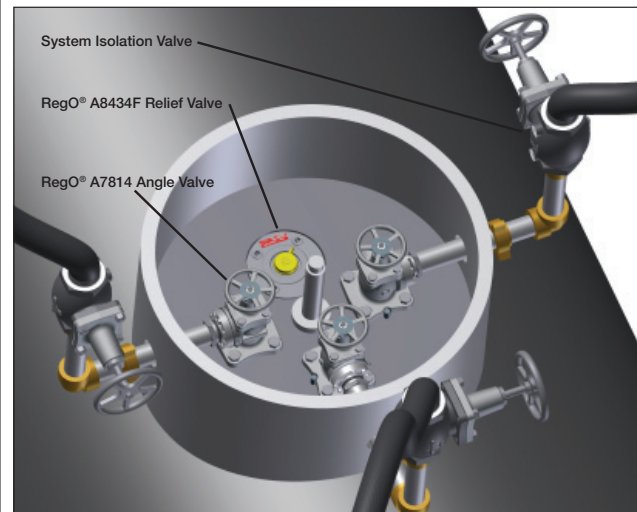
TA7814 Filling and Withdrawal of Product

Figure 3

This decal can be purchased separately under part number TA7814-72.

DANGER READ FIRST **WARNING**

EXPOSURE TO ANHYDROUS AMMONIA IS CORROSIVE TO HUMAN TISSUE. IT CAN BE LIFE THREATENING AND MAY EVEN CAUSE DEATH. IT IS CLASSIFIED AS AN INHALATION HAZARD. USE PROPER SAFETY EQUIPMENT TO PROTECT AGAINST CONTACT WITH ANHYDROUS AMMONIA.



RegO® Valve Operation

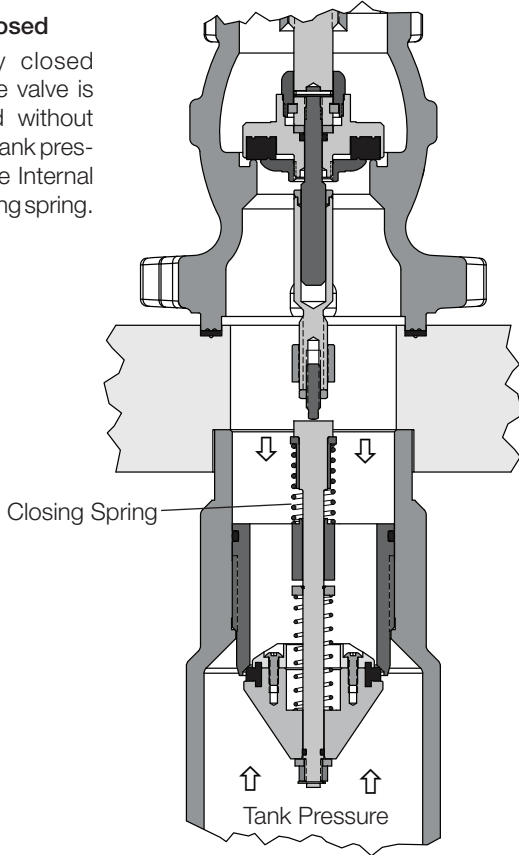
1. Connect the appropriate piping to the outlet of all RegO® A7814 Angle Valves.
*****THE SYSTEM ISOLATION VALVES MUST BE CLOSED*****
2. Open each Angle Valve two (2) full turns counterclockwise.
3. Allow 20 seconds for the pressure to equalize.
4. Once the pressure equalizes, open the RegO® Angle Valves by turning counterclockwise completely to back seat the valves.
5. Open the System Isolation Valves.
6. Begin loading/unloading product from the railcar.

A3214 and A3214J Internal Excess Flow Valves - How the Valve Works - Figure 4

Tank Car & Internal Valve in Fully Closed Position

1. Fully Closed

In the fully closed position, the valve is held closed without leakage by tank pressure and the Internal Valve's closing spring.

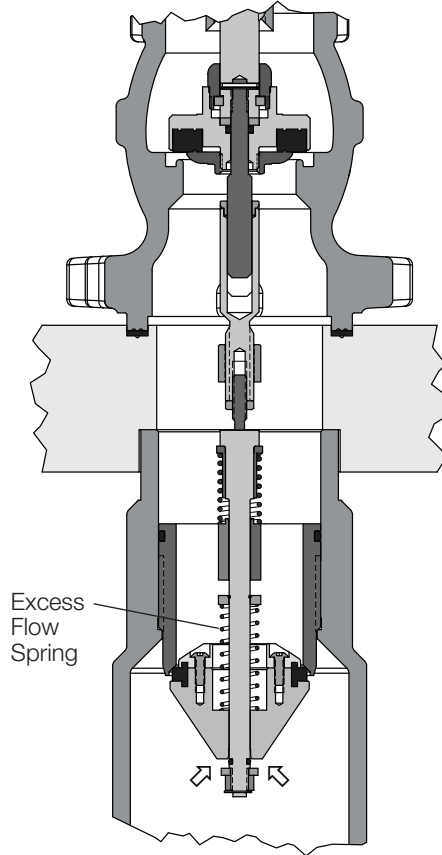


Tank Car & Internal Valve in Mid-Point Position

2. Rapid Bleed

Actuation of the operating handwheel 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 excess flow spring.

The valve is opened by moving the handwheel to mid-point. This moves the actuator to the equalizing position which allows product to bleed downstream. The equalizing position allows more product to bleed downstream than if the handwheel was fully open.



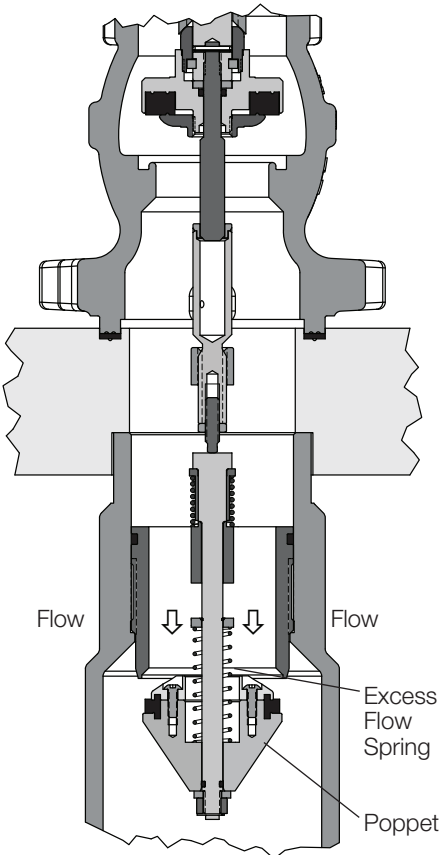
Tank Car & Internal Valve in Fully Open Position

3. Fully Open

In a few seconds, the tank and downstream pressure will be equalized, allowing the excess flow spring to push the poppet to the open position. The handwheel should then be moved to the fully opened position.

If the handwheel is quickly moved to the fully opened position, the equalization passage allows a small amount of bleed downstream, but much less than during the rapid bleed. This results in a longer pressure equalizing time before the valve can open.

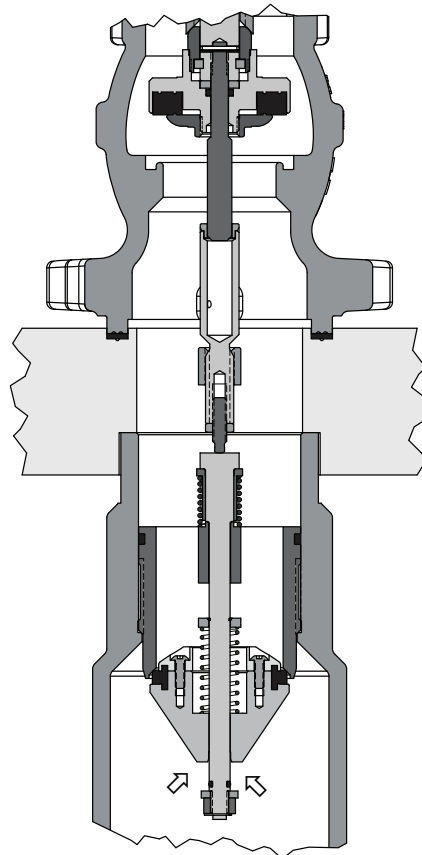
NOTE: The poppet will not open until outlet pressure approximates tank pressure!



Tank Car in Fully Open & Internal Valve in Partial Closed Position

4. Limit Bleed

Once the poppet is open, flow greater than the excess flow spring rating, or a sufficient surge in force of the flow, forces the poppet closed against the excess flow spring. The equalization passage in this position is open and allows a small amount of bleed downstream, but much less than during rapid bleed. When the operating handwheel is moved to the closed position, the valve closes and a tight, leakproof seal is re-established as seen in Step 1.



NOTICE

LP-Gas is extremely flammable and explosive. Failure to install parts exactly as described in the instructions could result in a product that will not perform satisfactorily. Even if parts are correctly installed, the product might fail to perform satisfactorily, if other parts are worn, corroded or dirty. Improper repair can cause leaks and malfunction, which could result in bodily injury and property damage. **Any such use or installation of parts must ONLY be done by experienced and trained personnel using accepted governmental and industrial safety procedures.**

Most RegO® products are listed with Underwriters Laboratories as manufactured. If repaired, the continued validity of the UL listing is contingent upon proper inspection to determine what needs repairing, proper repair using RegO® parts and procedures, and proper testing for leakage and performance following repairs and installation.

RegO® assumes no responsibility or liability for performance of products repaired in the field. It must be clearly understood that the person or organization repairing the product assumes total responsibility for performance of the product.

LIMITED 10 YEAR WARRANTY AND LIMITATION OF LIABILITY

LIMITED 10 YEAR WARRANTY

RegO® warrants to the original purchasers the products and repair kits manufactured by it to be free from defects in materials and workmanship under normal use and service for a period of 10 years from the date of manufacture. If within thirty days after buyer's discovery of what buyer believes is a defect, buyer notifies in writing and ships the product to RegO® at 100 RegO Drive, Elon, N.C. 27244, RegO®, at its option, and within forty-five days of receipt, will repair, replace F.O.B. point of manufacture, or refund the purchase price of that part or product found by RegO® to be defective. Failure of buyer to give such written notice and ship the product within thirty days shall be deemed an absolute and unconditional waiver of any and all claims of buyer arising out of such defect.

This warranty does not extend to any product or part that is not installed and used continuously after installation in accordance with RegO®'s printed instructions, all applicable state and local regulations, and all applicable national standards, such as those promulgated by NFPA, DOT and ANSI. This warranty does not extend to any product or part that has been damaged by accident, misuse, abuse, failure to maintain, or neglect, nor does it extend to any product or part which has been modified, altered, disassembled, or repaired in the field. This warranty does not cover any cosmetic issues, such as scratches, dents, marring, fading of colors or discoloration.

Except as expressly set forth above, and subject to the limitation of liability below, RegO® MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, with respect to its products and parts, whether used alone or in combination with others. RegO® disclaims all warranties not stated herein.

LIMITATION OF LIABILITY

RegO® total liability for any and all losses and damages arising out of any cause whatsoever shall

in no event exceed the purchase price of the products or parts in respect of which such cause arises, whether such causes be based on theories of contract, negligence, strict liability, tort or otherwise.

RegO® shall not be liable for incidental, consequential or punitive damages or other losses. RegO® shall not be liable for, and buyer assumes any liability for all personal injury and property damage connected with the handling, transportation, possession, further manufacture, other use or resale of products, whether used alone or in combination with any other products or materials.

From time to time buyers might call to ask RegO® for technical advice base upon limited facts disclosed to RegO®. If RegO® furnishes technical advice to buyer, whether or not a buyer's request, with respect to application, further manufacture or other use of the products and parts, RegO® shall not be liable for such technical advice or any such advice provided to buyer by any third party and buyer assumes all risks of such advice and the results thereof.

NOTE: Some states do not allow the exclusion or limitation of incidental, consequential or punitive damages, so the above limitation or exclusion may not apply to you. The warranty gives you specific legal rights, and you may have other rights that vary from state to state. The portions of the limited warranty and limitation of liability shall be considered severable and all portions which are not disallowed by applicable law shall remain in full force and effect.

WARNING

All RegO® products are mechanical devices that will eventually become inoperative due to wear, corrosion and aging of components made of materials such as rubber, etc. The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential to avoid serious injury and property damage.

Many RegO® products are manufactured components which are incorporated by others on or in other products or systems used for storage, transport, transfer and otherwise for use of toxic, flammable and dangerous liquids and gases. Such substances must be handled by experienced and trained personnel only, using accepted governmental in industrial safety procedures.

NOTICE TO USERS OF PRODUCTS

The Limited Warranty stated above is a factory warranty to the first purchasers of RegO® products. Since most users have purchased these products from RegO® distributors, the user must within thirty (30) days after the user's discovery of what user believes is a defect, notify in writing and return the product to the distributor from whom he purchased the product/part. The distributor may or may not at the distributor's option choose to submit the product/parts to RegO®, pursuant to this Limited Warranty. Failure by buyer to give such written notice within thirty (30) days shall be deemed an absolute and unconditional waiver of buyer's claim for such defects. Acceptance of any alleged defective product/parts by RegO®'s distributor for replacement or repairs under the terms of RegO®'s Limited Warranty in no way determines RegO®'s obligations under this Limited Warranty.

Because of a policy of continuous product improvement, RegO® reserves the right to change designs, materials or specifications without notice.



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