

# ECII/RegO Products

## Operating Instructions for A3212R/RT & A3213A/T

### Threaded Internal Valves for Liquid and Vapor Service

### Suitable for use on LP-Gas

### Maximum Allowable Pressure 25 bar

**WARNING:** Installation, usage and maintenance of this product must be in compliance with all Engineered Controls International, instructions as well as requirements and provisions of National, and, Local standards, codes, regulations and laws. Inspection and maintenance on a periodic basis is essential. Installation and maintenance on a periodic basis is essential. Installation and maintenance should be performed only by qualified personnel.

Be sure all instructions are read and understood before installation, operation, and maintenance. These instructions must be passed on to the end user of the valve. **CAUTION:** Contact or inhalation of liquid propane, anhydrous ammonia and their vapors can cause serious injury or death! NH<sub>3</sub> and LP-Gas must be released outdoors in air currents that will ensure 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 will not disperse or evaporate rapidly if released in still air.

## Installation:

1. Refer to the RegO Products Serviceman's Handbook (L-545), L-500, or L-102 Catalogs for sizing and selection information.
  2. The A3212R/RT and A3213A/T series can be installed in either half or full couplings. The closing rate of the excess flow feature of the valve will be affected by the couplings, see closing flow information.
  3. The valves are designed with a break off section below the inlet pipe thread, which is intended to shear off if the valve is struck from the side, leaving the valve seat intact.
- WARNING: Do not install the valve in any piping that will restrict the valve inlet or outlet!**
4. Apply a pipe joint compound suitable for LP-Gas (such as PTFE tape) to the male pipe threads of the valve and piping.
  5. Before connecting to a container installing a pipe into it, inspect all taper connections for foreign material. If any is found, remove it.
  6. Insert the valve connections into the container connection. Turn until hand tight.
  7. With a suitable wrench turn two to three turns beyond hand tight to create a seal.
  8. Follow all local codes and standards for pressure testing and leak testing the installation.
  9. After valve, pump and system piping are fully installed, run a thorough leak test using a high quality leak detection solution. The unit must be leak free before being placed in service.
  10. The system should be tested to assure proper excess flow valve operation by simulating a line break downstream at the furthest point being protected at the lowest operating pressure. **WARNING: This test must be performed in a safe location testing with flammable gas is extremely hazardous. Only authorized trained personnel should perform this test.**

### Cable Control System

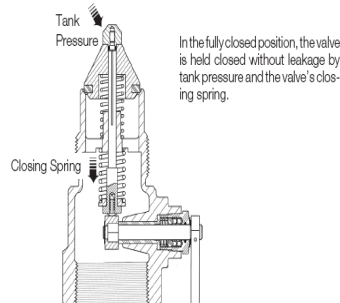
The cable control system should be installed in accordance with the provisions of NFPA 58, ANSI, DOT, and all applicable federal, state, Provincial and local codes. It is suggested that an external return spring be used when utilizing a cable system in order to overcome any drag in the control linkage. Inspect the cable system for binding that could cause the valve to stick in the open position.

## Operation:

How the valve works:

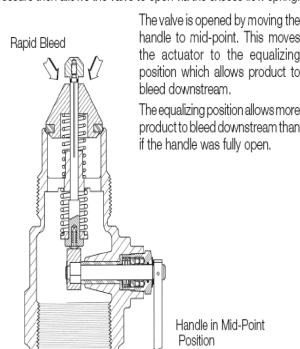
How the Valve Works

### 1 Fully Closed



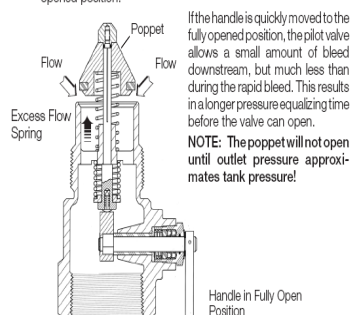
### 2 Rapid Bleed

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 excess flow spring.



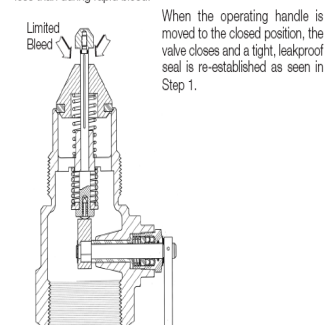
### 3 Fully Open

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 handle should then be moved to the fully opened position.



### 4 Excess Flow Closed

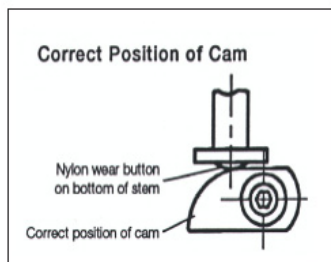
Once the poppet is open, flow greater than the excess flow spring rating, or a sufficient surge in force of the flow, forces the poppet closed against the excess flow spring. The pilot valve in this position is open and allows a small amount of bleed downstream, but much less than during rapid bleed.



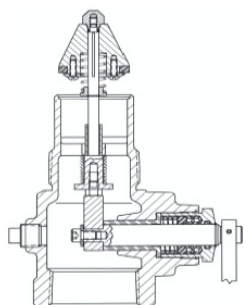
**Note: If the handle is quickly moved to the fully opened position, the pilot valve allows a small amount of bleed downstream, but much less than during rapid bleed (view "2"). This results in a longer pressure equalizing time before the valve can open. The poppet will not open until outlet pressure approximates tank pressure.**

The Engineered Controls International, Inc. A3212R/RT and A3213A/T Series Internal Valves are designed primarily for use with propane, butane and anhydrous ammonia. They are intended for use as a main valve on pump systems. They may also be installed in the vapor return line and liquid withdrawal openings on trucks or in-line installations.

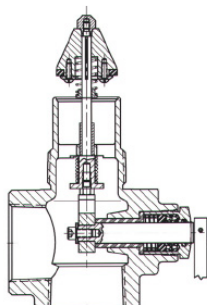
1. Valve must be opened before starting pump, and before opening valve on pump outlet.
2. Leave pumping system "wet" to avoid drying of seals and to reduce time involved in opening valve. Drain piping only when required by codes or safe operating practices.
3. When piping is dry or at a lower pressure than the tank, open valve halfway for a few seconds to allow line pressure to equalize before fully opening the valve handle. The 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 excess flow valve slams shut; stop the pump, close the nearest downstream valve, and move handle to the mid-point 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 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 an 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.



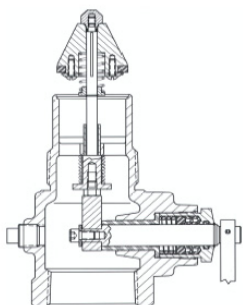
A3212R Series



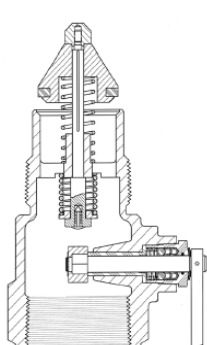
A3212RT Series



A3212R Series



A3213A Series



## Maintenance and Inspection:

### Periodically check for:

1. Check to see that the operating lever moves freely and smoothly. Check for leakage around the stem and sealing gland with a high quality leak detection solution. Leakage will require replacement of the sealing gland packing. A sticking lever indicates trapped foreign material or mechanism wear.
2. Check both seat discs for tight closure. Close internal valve and exhaust downstream pressure. Be sure piping is warmed to an ambient temperature. Install a pressure gauge between internal valve and first downstream valve. Closed the first downstream valve and observe for pressure build-up between the two closed valves with pressure gauge. If leakage occurs, replacement of both seat discs will be required.
3. Inspect, clean and lubricate all operating controls. Check controls to see that they open valve fully and that they freely closed the valve. Worn parts should be replaced.

Keep all equipment clean and replace damaged equipment immediately.

### General Warning:

All ECII products are mechanical devices the will eventually become inoperative due to wear, contaminants, corrosion, and aging components. Periodic inspection and maintenance are essential. The safe useful life of this product can vary greatly depending on the environment it is exposed to, and the inspection/maintenance program that is used. For more information refer to RegO Products L-500 catalog or [www.regoproducts.com](http://www.regoproducts.com).

## Troubleshooting

### 1. Internal Valve Will Not Open

Causes may be excess leakage downstream, pump engaged too quickly, excessive wear of the valve, or ice accumulation.

When there is excessive volume downstream, a greater amount of time is required to equalize tank and downstream pressure.

To determine if the pilot seat is opening, install a pressure gauge downstream of valve outlet while keeping the system closed downstream of the pressure gauge. Open any hand valves between the valve and pressure gauge, and open internal valve. Pilot seat is not opening if pressure does not build up to tank pressure. Perform this test with the pump off. A broken internal part may cause the pilot seat not to open.

### 2. Premature Valve Closure

First, check to see that the operating lever is properly connected and fully opens the valve. Premature closure may also be a result of; engaging pump too quickly, sudden line surges, an underrated excess flow spring or an obstructed inlet port.

### 3. Valve Will Not Close

Usually, the result of a faulty or sticking actuator. Check the actuator to see that it works freely by cycling it several times with the lever. If it sticks in the open position, repairs are required. Internal damage will also cause the valve not to close.

### 4. Low Flow Capacity

Downstream piping may be too small and/or long. The internal valve may be too small. The valve inlet may be restricted. There may be downstream restrictions or a bypass valve stuck in the open position. These are all possible causes of low flow.

Part #	Configuration	Inlet Connection M. NPT	Outlet Connection F. NPT	Closing Flow (GPM) Propane			
				Half Coupling		Full Coupling	
				LP-Gas	NH3	LP-Gas	NH3
A3212R105	Straight	2"	2"	105	95	65	59
A3212R175				175	158	100	90
A3212R250				250	225	130	117
A3212RT105	"T" Design			105	95	65	59
A3212RT175				175	158	100	90
A3212RT250				250	225	130	117
A3213A150	Straight	3"	3"	150	135	125	113
A3213A200				200	180	160	144
A3213A300				300	270	250	225
A3213A400	400			360	325	293	
A3213T150	"T" Design			150	135	125	113
A3213T200				200	180	160	144
A3213T300		300	270	250	225		
A3213T400		400	360	325	293		

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### Hazards:

These valves are designed to stop flow out of the container if the operating lever is closed either directly or from a remote location. If the remote cable release or pneumatic actuators are inoperative the valve will not close.

Valve is not designed for water service. After tank is hydrostatically tested, immediately remove all water and allow tank thoroughly dry out before installing valve

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 rating will result in the excess flow of the valve and not operating when required.

Never uncouple the valve connections until all pressure is bled from the lines.

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