

# Cash Valve



## A Series

### Pressure Regulators

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ISO 9001 Certified

# A Series - General Information

## Description

Type 'A' series pressure reducing and regulating valves automatically reduce a high initial pressure to a lower delivery pressure, and maintain that lower pressure, depending on the specific design selected, within reasonably close

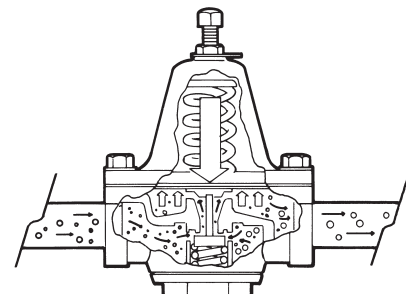
limits. All 'A' series valves are single seated, self-actuating, diaphragm type regulators. They are available in a wide range of designs and operating pressure ranges for a variety of applications with water, air, oil, gases, or other non-

corrosive fluids as may be recommended for a specific design. 'A' series regulators are not to be used for steam service.

## Operation

All 'A' series pressure regulators are supplied with the requested delivery pressure pre-adjusted at the factory. Pressure adjustment is accomplished by turning the adjusting screw either clockwise to increase delivery pressure or counterclockwise to reduce delivery pressure. For example, turning the adjusting screw clockwise forces the adjusting spring to act against the diaphragm assembly and move the internal valve seat to the open position. When high inlet pressure is applied, it flows into the regulator, through the open seat, up under the diaphragm and on through the outlet. As the outlet

pressure builds up under the diaphragm to the adjusted psi setting, the downward adjusting spring pressure is overcome and the regulating valve seat closes to maintain the required delivery pressure. While the foregoing is a simplified description of how a pressure regulator functions in a closed system, there are many important factors that enter into the design, performance characteristics, and selection of pressure regulators. When in doubt as to the proper regulator to use for your specific application, Cash Valve stands ready to assist you in any way possible.



## A-16 Moderate Regulation Low To Medium Capacity

### Application

Type A-16 regulators are suitable for air, water, oil, fluids, and gas applications and are intended for use on equipment requiring moderate regulation, low to medium capacity, and installations where space limitations and flexibility of hook-up are important factors. They are designed for initial pressures up to 250 psi and delivery pressures ranging from 2 to 180 psi depending on the spring

used. See Spring Range Table at the top of page 4. The maximum operation temperature is 180°F.

The A-16 type regulator is suitable for use in drinking fountains, bubblers, water coolers, humidifiers, beverage dispensers, spray paint rigs, air tools, etc. A-16 capacity information may be found on page 4.



Type A-16 (Two-Way)

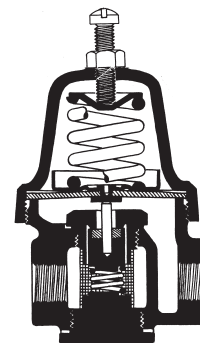
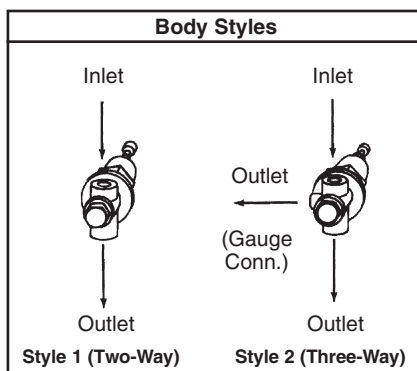
| Type | Description |      |            |           | Maximum Inlet Pressure (psi) | Adjustable Range (psi) | Maximum Operating Temperature (°F) |
|------|-------------|------|------------|-----------|------------------------------|------------------------|------------------------------------|
|      | Size        |      | Body Style |           |                              |                        |                                    |
|      | 1/4"        | 3/8" | Two-Way    | Three-Way |                              |                        |                                    |
| A-16 | X           | X    | X          | X         | 250                          | 2-180                  | 180                                |

### Features

- Sizes: Available in 1/4" or 3/8"
- Body styles:
  - Two-way valve with one female inlet and opposite female outlet.
  - Three-way valve with one female inlet and opposite female outlet plus a left-hand side 1/4" NPT gauge connection.

**Note: Gauge connection designation is in relation to main valve inlet with valve in upright position.**

- All brass body with inbuilt strainer.
- Easily renewable disc-piston assembly.
- Screwed in cylinder body seat provides for easy removal.
- Self contained strainer protects working parts.



Type A-16 (Two-Way) Interior

### Construction

| Part Description | Materials |
|------------------|-----------|
| Body             | Brass     |
| Spring Chamber   | Aluminum  |
| Spring Button    | Brass     |
| Adjusting Spring | Steel     |
| Diaphragm Gasket | Brass     |
| Diaphragm        | BUNA-N    |
| Pressure Plate   | Brass     |

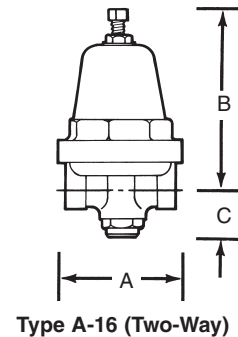
| Part Description   | Materials           |
|--------------------|---------------------|
| Pusher Post Button | Brass               |
| Cylinder           | Brass               |
| Piston             | Brass               |
| Seat Disc          | BUNA-N              |
| Piston Spring      | 302 Stainless Steel |
| Strainer Screen    | Brass               |

# A Series - Pressure Regulators

## Specifications

| Dimensions |        |         | Description  |              | Ship. wt. (lbs.) |
|------------|--------|---------|--------------|--------------|------------------|
| A          | B      | C       | Size         | Style        |                  |
| 2 1/4"     | 3 1/2" | 1 3/16" | 1/4" or 3/8" | 2-way, 3-way | 1 3/4            |

| Spring Numbers and Range of Adjustment (in psi) |                |                |                 |                  |
|---|----------------|----------------|-----------------|------------------|
| #1618<br>2-30                                   | #1747<br>10-50 | #1748<br>25-90 | #1841<br>80-120 | #2235<br>100-180 |



## Capacity Information

| Inlet - psig | Outlet - psig | Water (GPM) |            |            | Air (SCFM) |            |            |
|--------------|---------------|-------------|------------|------------|------------|------------|------------|
|              |               | A-31/A-16   | 1/4" A-360 | 1/2" A-360 | A-31/A-16  | 1/4" A-360 | 1/2" A-360 |
| 25           | 15            | 1.2         | 1.5        | 2          | 8          | 13         | 17         |
|              | 40            | 1.2         | 1.5        | 2          | 8          | 13         | 17         |
| 50           | 25            | 1.4         | 2.2        | 2.5        | 11         | 21         | 25         |
|              | 50            | 2.7         | 3          | 5.5        | 20         | 25         | 45         |
| 75           | 25            | 3           | 3.5        | 3.5        | 14         | 27         | 32         |
|              | 75            | 2.8         | 3          | 5.7        | 28         | 25         | 48         |
|              | 50            | 3           | 3.6        | 9          | 25         | 30         | 60         |
| 100          | 25            | 3           | 3.6        | 3.5        | 25         | 35         | 41         |
|              | 100           | 2.8         | 3          | 5.7        | 28         | 25         | 45         |
|              | 75            | 3.7         | 4          | 7          | 34         | 35         | 62         |
| 125          | 50            | 3.2         | 4          | 5.2        | 34         | 40         | 78         |
|              | 150           | 3.7         | 4          | 7          | 34         | 35         | 62         |
|              | 75            | 3.7         | 4.5        | 8.5        | 34         | 40         | 78         |
| 150          | 50            | 3.2         | 4.8        | 10.5       | 27         | 45         | 95         |
|              | 25            | 1.8         | 4.8        | 10.5       | 27         | 45         | 95         |
|              | 200           | 4.4         | 4.4        | 7.5        | 47         | 45         | 85         |
|              | 100           | 4.2         | 4.5        | 10         | 38         | 45         | 95         |
| 200          | 75            | 4.2         | 5          | 13.5       | 38         | 45         | 95         |
|              | 50            | 4.2         | 5          | 13.5       | 38         | 45         | 95         |
|              | 300           | 4.7         | 5          | 13.5       | 54         | 45         | 110        |
|              | 100           | 4.7         | 5          | 13.5       | 54         | 45         | 95         |
| 300          | 50            | 4.7         | 5          | 13.5       | 54         | 45         | 95         |

## Notes

1. The capacity information in this table is for general application use representing average conditions. Where capacities and sizing are critical, consult factory.
2. Types A-31 and A-16 provide the same capacity.
3. Capacity for 1/4" and 3/8" A-360 same for A-361 and A-365.
4. Capacity for 1/2" A-360 same as a A-361.
5. Capacities are based upon a 20% falloff.

## A-31, A-31S Compact and Economical Regulators

### Application

Types A-31 and A-31S pressure regulating valves are designed for installations where space and cost limitations are important in systems with initial pressures up to 300 psi. The standard adjustment range is from 2 to 180 psi. (See Spring Range Chart under Specifications.) The maximum operating temperature is 180°F. For higher temperature installations consult the factory for recommendations. Types A-31 and A-31S are for use on water and air, suitable for drinking fountains, bubblers, water coolers, humidifiers, beer pumps, beverage dispensers, spray paint outfits, air tools, etc. They are suitable also for other liquids and gases if recommended by the factory; write, giving full details for specific advice.

Type A-31HC is specifically designed for mobile home or recreational vehicle water systems. Refer to Special Designs for additional information.

### Features

Cash Valve Types A-31 and A-31S pressure regulating valves are available in 1/8", 1/4" and 3/8" sizes and in various optional body styles. They may be fitted with several different types of pressure adjustment screws.

### Body Styles

Type A-31: Two-way valve with one female inlet and opposite female outlet.

Type A-31S: Three-way valve with one female inlet and opposite female outlet plus either a left or right-hand side 1/4" NPT gauge connection. Specify gauge connection required when ordering.

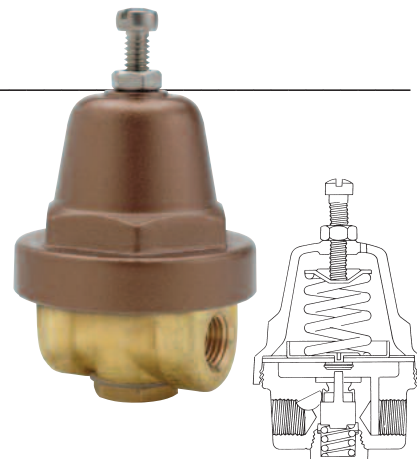
**Note: Gauge connection designations are in relation to main valve inlet with valve in the upright position.**

### Optional Balanced Piston

The Type A-31 regulator can be furnished with a balanced piston construction for a small extra charge. The balanced piston design is particularly effective in keeping the delivery pressure near constant when there are wide fluctuations in the inlet pressure.

### Pressure Adjusting Screws

Type A-31 and A-31S pressure regulators are fitted with a Fillister head adjusting screw and hex lock nut standard. They can also be supplied with either a T-handle or black plastic handwheel with wing lock nut arrangement at a small extra charge. The handwheels are particularly well suited for panel mounted installations both for improved appearance as well as ease of making pressure adjustments. See Mounting Accessories, below.



### Mounting Accessories

These regulators can be equipped with a special bushing and nut for panel mounting.

### Special Designs

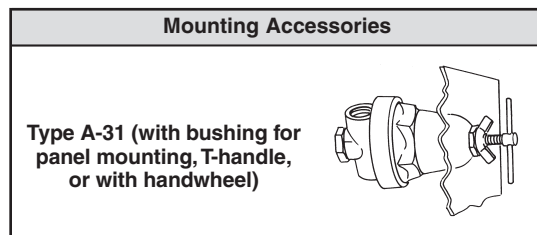
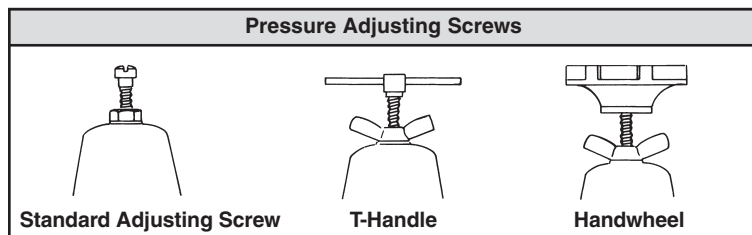
Cash Valve offers various modifications of the Type A-31 pressure regulating valve to meet the demand for specific applications.

### A-31HC Mobile Home Water Regulator

This modified 3/8" regulator is specially designed for mobile homes or recreational vehicle installations where space limitations are important and where relatively low capacity is required. Type A-31HC is fitted with standard brass hose connections and washers for connection to trailer and to water supply and is preset at 45 psi. Maximum operating temperature is 180°F.

| Type    | Description |      |      |            |           | Max. Inlet Pressure (psi) | Adjustment Range (psi) | Balanced Piston Design | Maximum Operating Temperature (°F) |
|---------|-------------|------|------|------------|-----------|---------------------------|------------------------|------------------------|------------------------------------|
|         | Size        |      |      | Body Style |           |                           |                        |                        |                                    |
|         | 1/8"        | 1/4" | 3/8" | Two-Way    | Three-Way |                           |                        |                        |                                    |
| A-31    | X           | X    | X    | X          |           | 300                       | 2-180                  | Optional               | 180                                |
| A-31S   | X           | X    | X    |            | X         | 300                       | 2-180                  | Optional               | 180                                |
| A-31HC* |             |      |      | X          |           | 300                       | 2-180                  |                        | 180                                |

\*Special mobile home water regulator



# A Series - Pressure Regulators

## Construction

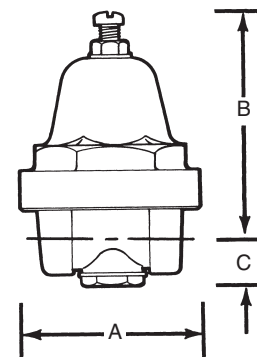
| Part Description | Materials                |
|------------------|--------------------------|
| Body             | Brass                    |
| Spring Chamber   | Brass or Aluminum        |
| Spring Button    | Brass                    |
| Adjusting Spring | Steel or Stainless Steel |
| Diaphragm Gasket | Brass                    |

| Part Description | Materials           |
|------------------|---------------------|
| Diaphragm        | BUNA-N              |
| Pressure Plate   | Brass               |
| Piston           | Brass               |
| Seat Disc        | BUNA-N              |
| Piston Spring    | 302 Stainless Steel |

## Specifications

| Type A-31 & A-31S Spring Numbers and Range of Adjustment (in psi) |               |                |                |                 |                  |
|---|---------------|----------------|----------------|-----------------|------------------|
| #6354<br>2-15   | #1618<br>2-30 | #1747<br>10-50 | #1748<br>30-90 | #1841<br>80-120 | #2235<br>100-180 |

| Dimensions |         |      | Type                 | Shipping wt.<br>(lbs.) |
|------------|---------|------|----------------------|------------------------|
| A          | B       | C    | 1/8", 1/4", 3/8"     |                        |
| 2 1/4"     | 3 3/16" | 1/4" | A-31, A-31S          | 1 1/4                  |
| 2 1/4"     | 3 3/16" | 5/8" | A-31 Balanced Piston | 1 3/8                  |



TYPE A-31

## A-360, A-361 & A-365 Accurate Regulation Medium and High Capacity

### Application

Cash Valve Types A-360, A-361 and A-365 pressure reducing regulating valves incorporate an aspirating action to give accurate regulation at high flow rates. Extreme fluctuations in the upstream or inlet pressure have little or no effect on the delivery or outlet pressure due to balanced design. They are recommended for air, oils, water, gases, and all non-corrosive fluids. NOT FOR STEAM SERVICE. The maximum system operating temperature must not exceed 180°F.

Types A-360 and A-361 are designed for systems having a maximum inlet pressure of 400 psi and allow delivery pressures to be adjusted from 0 to 250 psi depending on spring used. Types A-360 and A-361 are available in 1/4", 3/8", and 1/2" sizes.



Type A-360, 365

Type A-365 is designed for a maximum inlet pressure of 1,100 psi, while allowing for delivery pressures to be adjusted from 0 to 250 psi. Available in 1/4" and 3/8" sizes only.

Types A-360, A-361 and A-365 regulators are recommended for any installation requiring more flow and finer



Type A-361

regulator control than the small ordinary regulator can provide. They may be operated in any position, horizontal or vertical. For information relating to the adjustment range and spring relationship for the respective valves, refer to Spring Range Table under Specifications on page 9.

| Type  | Description |      |      |            |                        | Maximum Inlet Pressure (psi) | Adjustable Range (psi) | Maximum Operating Temperature (°F) |
|-------|-------------|------|------|------------|------------------------|------------------------------|------------------------|------------------------------------|
|       | Size        |      |      | Body Style |                        |                              |                        |                                    |
|       | 1/4"        | 3/8" | 1/2" | Two-Way    | Three-Way* Or Four-Way |                              |                        |                                    |
| A-360 | X           | X    | X    | X          |                        | 400                          | 0-250                  | 180                                |
| A-361 | X           | X    | X    |            | X                      | 400                          | 0-250                  | 180                                |
| A-365 | X           | X    |      | X          |                        | 1100                         | 0-250                  | 180                                |

\* 1/4" NPT pipe plug fitted for three-way applications

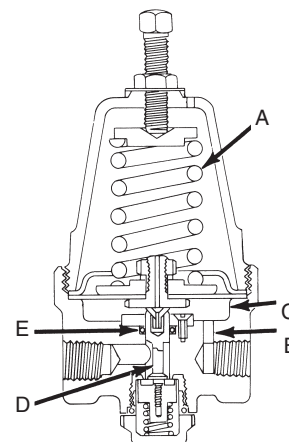
### Operation

Types A-360, A-361 and A-365 regulators produce maximum sensitivity to changes in demand or rate of flow, by the combination of long, responsive springs (see A) and a body port (B) past which fluid flowing at a higher velocity creates a suction or aspirating action. This materially reduces pressure in the chamber below the diaphragm (C), permitting wider valve opening resulting in higher capacity and closer regulation.

Type A-360 series valves have a balanced internal piston design (D) to ensure stability of outlet pressure control despite widely varying inlet pressure conditions. An upper piston

O-ring seal (E) is used to isolate the inlet pressure from the control chamber below the diaphragm, and may be easily renewed from the top side by removing the O-ring retainer (two screws). All other operating parts below the diaphragm are easily accessible and readily removable through the bottom cap which also employs an O-ring seal to preclude any leakage.

Renewable valve seat disc is high quality composition to provide tight closure as long as seat is clean and free from damage. Closure against the inlet pressure ensures smooth, quiet performance.



Type A-360, A-361 Interior

# A Series - Pressure Regulators

## Features

Cash Valve Types A-360 thru A-365 pressure regulating valves incorporate many unique features which enable them to be adapted to most any system.

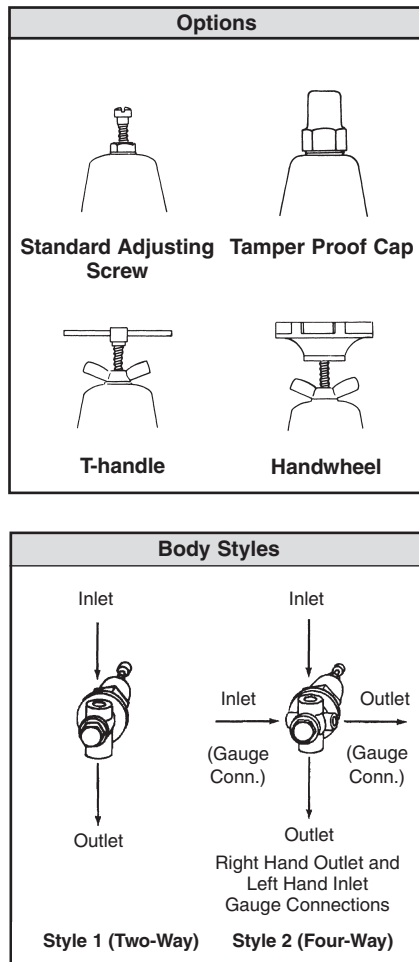
### Accurate regulation

Balanced piston design maintains near constant delivery pressure when there are wide fluctuations in the inlet pressure.

### Body styles

Type A-360 and A-365 - Two-way valve with one female inlet and opposite female outlet.

Type A-361 - Adaptable for three-way or four-way use. Design incorporates one female inlet and opposite female outlet plus one left and one right-hand side 1/4" NPT gauge connection. One 1/4" NPT plug furnished to convert from four-way to three-way use. Four-way design permits installation with either one inlet and three outlets; or two inlets and two outlets to provide for all combinations of gauging upstream or downstream pressures.



### Pressure Adjusting Screws

Fitted with square head screw and lock nut standard.

May also be fitted with an optional tamper proof cap, a T-handle, or a black plastic handwheel with lock nut at a small extra cost.

### Panel Mounting

All versions may be equipped with a special bushing and nut to securely mount the valve to a control panel.

### Replaceable Seat Disc, O-rings, Diaphragm, and Piston

Simplicity of design gives a minimum in maintenance attention and expense. Few integral parts are required to make these regulators like new again.



# A Series - Pressure Regulators

## Construction

| Part Description   | Materials           |
|--------------------|---------------------|
| Body               | Brass or Bronze     |
| Spring Housing     | Bronze              |
| Adjusting Spring   | 302 Stainless Steel |
| Diaphragm Stop     | Brass               |
| Pressure Plate     | Brass               |
| Diaphragm          | Neoprene            |
| Pusher Post Button | Brass               |
| Retainer Plate*    | Brass               |
| Cylinder**         | 303 Stainless Steel |

| Part Description | Materials           |
|------------------|---------------------|
| Pusher Post      | 303 Stainless Steel |
| Seat Disc        | BUNA-N              |
| Piston           | Brass               |
| Piston Spring    | 302 Stainless Steel |
| O-rings          | BUNA-N              |

\* Except A-365

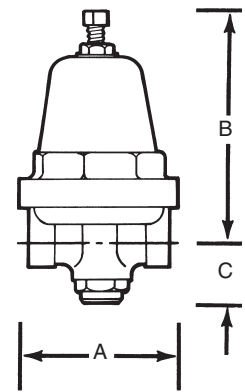
\*\* A-365 only

## Specifications

| Description |            |                   | Dimensions |        |        | Shipping wt. (lbs.) |
|-------------|------------|-------------------|------------|--------|--------|---------------------|
| Type        | Size       | Style             | A          | B      | C      |                     |
| A-360       | 1/4", 3/8" | Two-way           | 2 1/2"     | 4 1/2" | 1 1/8" | 2                   |
| A-360       | 1/2"       | Two-way           | 2 7/8"     | 4 1/2" | 1 5/8" | 2 1/2               |
| A-361       | 1/4", 3/8" | Three or Four-way | 2 1/2"     | 4 1/2" | 1 1/8" | 2 1/8               |
| A-361       | 1/2"       | Three or Four-way | 2 7/8"     | 4 1/2" | 1 5/8" | 2 5/8               |
| A-365       | 1/4", 3/8" | Two-way           | 2 1/2"     | 4 1/2" | 1 1/8" | 2                   |

| Type                         | Sizes      | Spring Numbers and Range of Adjustment (in psi) |               |                |                 |                 |                  |
|------------------------------|------------|---|---------------|----------------|-----------------|-----------------|------------------|
| A-360<br>A-361<br>&<br>A-365 | 1/4", 3/8" | #10884<br>0-5                                   | #8238<br>2-35 | #8239<br>20-70 | #8240<br>60-125 | #8241<br>75-200 | #8242<br>100-250 |
|                              | 1/2"       | #10884<br>0-5                                   | #8238<br>2-25 | #8239<br>20-60 | #8240<br>40-80  | #8241<br>75-125 | #8242<br>100-250 |

Note: A-365 1/2" not available.



Type A-360, A-365

CONTINUED ON FOLLOWING PAGE

# A Series - Pressure Regulators

## How To Order

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To order, specify Cash Valve type by specific series designation (i.e. Type A-361 or A-365) and the valve body style (i.e. 2-way or 3-way, etc.), if applicable. Also state the following:

1. Valve size
2. Service (water, air, oil, etc.)
3. Inlet pressure
4. Outlet or delivery pressure range and setting
5. Maximum required flow rate
6. System operating temperature
7. Optional features, if any, as described for a specific valve. Specify gauge connections as either left- or right-hand in relation to valve inlet, with valve in up-right position.

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