

## **Simple Set** **Pressure Independent** **Control Valves** 2 Way • 1/2" - 2"

03/20/20

The Bray Simple Set is a threaded pressure independent control (PIC) valve designed for a wide variety of hot water and chilled water control applications. The SS Series combines high rangeability control and dynamic balancing into a single compact housing, eliminating the material, installation and commissioning costs of a separate balancing component.

The maximum flow rate is easily set by hand with an adjustment on the top of the valve. The unique design of the Simple Set provides full stroke of the control element, even when the flow rate setting is a small percentage of the maximum flow capacity of the valve.

Simple Set valves achieve a continuous flow rate at any fixed position of the valve irrespective of inlet pressure change. This prevents overflow at any load condition, which contributes to optimal coil performance and primary equipment efficiency.



### **System Types:**

Fan Coils, VAV Reheat Coils, Chilled Beams, Computer Room Air Conditioning Units and Air Handling Units.

### **Features and Benefits**

- **Brass Housing with high flow cavity**  
*Robust design, resistant to high temperatures and moderate levels of particulate.*
- **Low pressure drop**  
*Reduces pump head requirements for added energy efficiency.*
- **Long Stroke**  
*Provides greater controllability.*
- **No minimum straight pipe lengths required before or after the valve**  
*Provides for maximum piping flexibility, even in crowded mechanical rooms.*

# Simple Set - Valve Specifications

1/2" - 2"

## Technical Specifications - Valve

|                            |                      |  |                   |
|----------------------------|----------------------|--|-------------------|
| Valve Body                 |                      | 1/2" - 2"  |                   |
| Service                    |                      | Hot Water, Chilled Water, 50/50 Glycol Solutions         |                   |
| Cold Working Pressure      |                      | 375 PSI (25 Bar)   |                   |
| Media Temp. Range          |                      | 32°F to 248°F (0°C to 120°C)                             |                   |
| Operational ΔP             | Minimum              | Varies by size. See page SS-10 & SS-11                   |                   |
| Operational ΔP             | Maximum              | 58 psid (400kPa)   |                   |
| Maximum Close-Off Pressure |                      | 58 psi (400kPa)  |                   |
| Valve Operation            |                      | Push Down to Close, Normally Open                        |                   |
| Shut-Off Leakage           |                      | ANSI Class IV (0.01%)                                    |                   |
| Stroke                     |                      | 1/2" to 1 1/4" = 0.22" (5.5mm) 1.5" to 2" = 0.59" (15mm) |                   |
| End Connections            |                      | NPT Threaded   |                   |
| Materials                  | Body Material        | Brass  |                   |
|                            | Flow Regulation Unit | PPS 40% Glass  |                   |
|                            | Diaphragm            | HNBR   |                   |
|                            | Spring               | Stainless Steel  |                   |
|                            | O-Rings              | EPDM   |                   |
| Weights (lbs.)             | Valve Body Only      | 1/2"   | 1.98 lb., .90 kg  |
|                            |                      | 3/4"   | 1.98 lb., .90 kg  |
|                            |                      | 1"   | 2.21 lb., 1.00 kg |
|                            |                      | 1-1/4"   | 3.35 lb., 1.60 kg |
|                            |                      | 1-1/2"   | 6.34 lb., 2.90 kg |
|                            |                      | 2"   | 8.70 lb., 4.00 kg |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

# Simple Set - Actuator Specifications

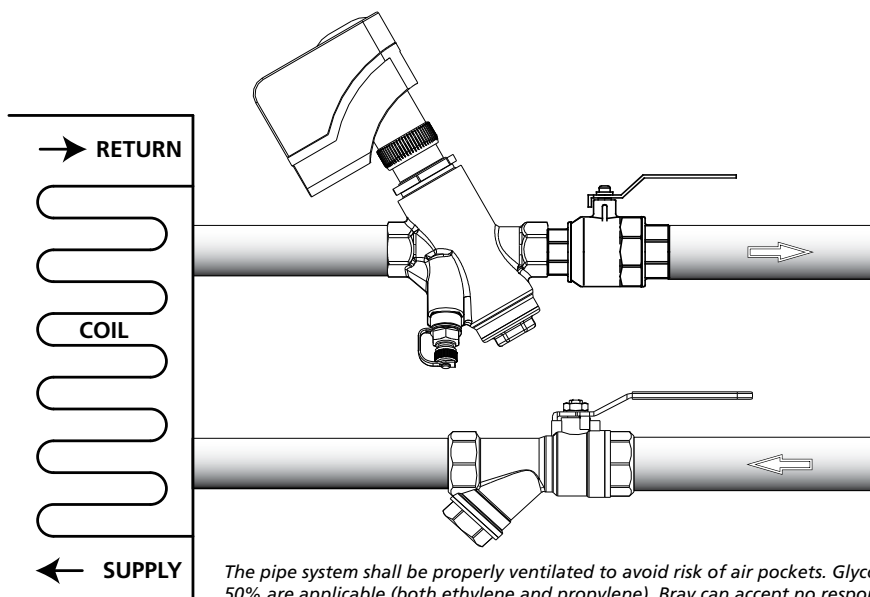
## Technical Specifications

| Actuator Models     | Valve Sizes 1/2" to 1-1/4"                    |   |  |  | Valve Sizes 1-1/2" to 2"  |   |
|---------------------|---|---|--|--|---|---|
|                     | PA24-27<br>On/Off & Floating<br>Non-Fail Safe | PA24-27-FS<br>On/Off & Floating<br>Fail Safe  | PAM24-27<br>Modulating<br>Non-Fail Safe                              | PAM24-27-FS<br>Modulating<br>Fail Safe | PAM24-100<br>On/Off, Floating<br>& Modulating<br>Non-Fail Safe                                  | PAM24-100-FS<br>On/Off, Floating<br>& Modulating<br>Fail Safe |
| Supply Voltage      | 22 to 26 AC/DC                                |   |  |  | 22 to 26 VAC or 28 to 32 VDC  |   |
| Power Consumption   | 5 VA  | 10 VA   | 5 VA   | 10 VA                                  | 6 VA  | 6VA, 20VA Start Up  |
| Control Signal      | 2 Position On/Off<br>or 3-Point Floating      | 2 Position On/Off<br>or 3-Point Floating      | Analog, 0-10Vdc or 2-10Vdc;<br>4-20mA with external<br>500Ω resistor |  | 2 Position On/Off (Digital-Pulse<br>Width Modulation),<br>3 Point Floating, Modulating (Analog) |   |
| Input Impedance     | 4.7 K   | 4.7 K   | 10.0 K   | 100 K                                  | 100 K   |   |
| Feedback Signal     | No  | No  | 0-10VDC or 2-10VDC   |  | 4 to 20 mA or 2 to 10VDC<br>adjustable (Factory set to 4 to 20 mA)                              |   |
| Failsafe Function   | No  | Yes (60 Sec. Runtime)                         | No   | Yes (60 Sec. Runtime)                  | No  | Yes (60 Sec. Runtime)   |
| Anti-Stick          | No  | No  | Optional <sup>2</sup>  | Optional <sup>2</sup>                  | Yes   |   |
| Operation Time      | 120 Seconds                                   |   |  |  | 90 Seconds  |   |
| Enclosure Rating    | NEMA type 3R (Equivalent to IP54)             |   |  |  | NEMA type 3R (Equivalent to IP54)   |   |
| Ambient Temperature | 36°F to 122°F (2°C to 50°C)                   |   |  |  | 0°F to 122° (-18°C to 50°C)   |   |
| Humidity Rating     | 5 to 95% RH Non Condensing                    |   |  |  | 5 to 95% RH Non Condensing  |   |
| Connection          | 3 wires 18 AWG<br>halogen free cable, 3.2 ft. | 4 wires 18 AWG<br>halogen free cable, 3.2 ft. |  |  | Terminal Connection.<br>Use 18 AWG Minimum  |   |
| Noise Rating        | >35dBA  |   |  |  | >35dBA  |   |
| Dimensions          | L) 4.09" x (W) 2.08"<br>x (H) 3.62            |   |  | L) 4.09" x (W) 2.08"<br>x (H) 4.18     |   | L) 4.80" x (W) 3.60"<br>x (H) 6.93"                           |
| Weight              | 0.9 lb. (0.4 kg)                              |   |  |  | 2.0 lb. (0.9 kg)  |   |
| Agency Listing      | cULus, cCSAus, C E                            |   |  |  | cULus, cCSAus, C E  |   |

### <sup>2</sup>Anti-Stick Option

With the anti-stick option activated, the actuator will make one full cycle every 24 hours, if the actuator constantly has been in fully open or fully closed position during the previous 24 hours. This operation will clear up any possible impurities accumulated in the valve, and re-calculate the end positions.

## Simple Set - Piping Diagrams



*The pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene). Bray can accept no responsibility if another actuator is used instead of the actuator provided.*

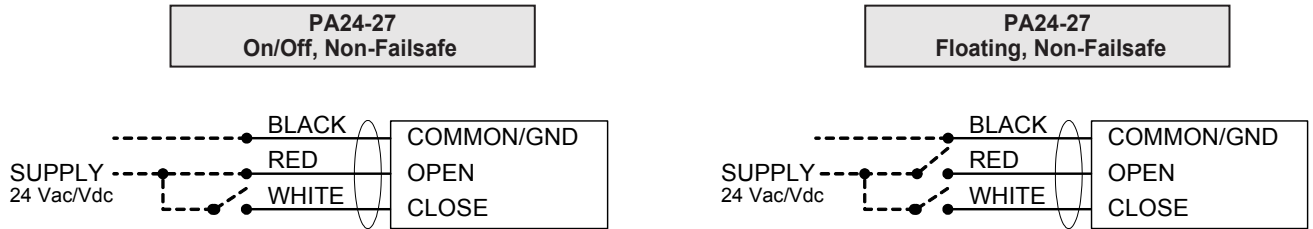
# Simple Set - Actuator Wiring



## PA24-27 — Install Instructions

27 lb-force — Non-Fail Safe — On/Off and Floating

### Wiring: (Cable)



### DIP Switches

DIP Switches  
(default settings shown)

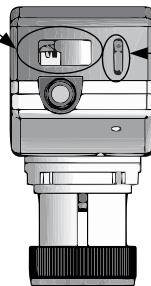
Not used

LED Status

#### 1) Rotation Direction

**Switch Off:** Default  
Red wire = Open (Stem Up)  
White wire = Close (Stem Down)

**Switch On:** Red wire = Close (Stem Down)  
White wire = Open (Stem Up)



**Normal:** Flash 0.5 sec ON / 10 sec OFF  
**Error:** Flash 0.2 sec ON / 0.2 sec OFF

NOTE: For additional operating information consult PA24-27 Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



## PA24-27-FS — Install Instructions

27 lb-force — Fail Safe — On/Off and Floating

### Wiring: (Cable)



### DIP Switches

DIP Switches  
(default settings shown)

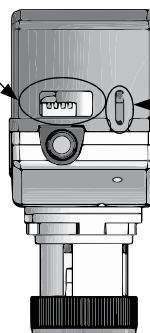
#### 2) Failsafe Direction

**Switch Off:** Valve Normally Open (Stem Up)

**Switch On:** Valve Normally Closed (Stem Down)

**Switch Off:** Default  
Red wire = Open (Stem Up)  
White wire = Close (Stem Down)

**Switch On:** Red wire = Close (Stem Down)  
White wire = Open (Stem Up)



LED Status

**Normal:** Flash 0.5 sec ON / 10 sec OFF  
**Error:** Flash 0.2 sec ON / 0.2 sec OFF  
**Failsafe Operation:** OFF

NOTE: <sup>1</sup>The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PA24-27-FS Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

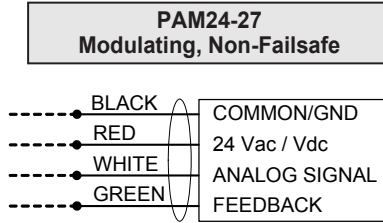
# Simple Set - Actuator Wiring



## PAM24-27 — Install Instructions

27 lb-force — Non-Fail Safe — Modulating

### Wiring: (Cable)



### DIP Switches

#### 1) Rotation Direction

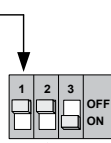
**Switch Off:** Default  
Valve Open  
(Stem Up) - (0 Vdc)

**Switch On:** Valve Closed  
(Stem Down) - (0 Vdc)

#### 2) Anti-Stick System

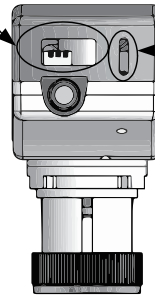
**Switch Off:** Deactivated  
**Switch On:** Activated

#### DIP Switches (default settings shown)



#### 3) Input Analog - Signal & Feedback

**Switch Off:** 2-10 Vdc  
**Switch On:** 0-10 Vdc



#### LED Status

**Normal:** Flash 0.5 sec ON / 10 sec OFF  
**Error:** Flash 0.2 sec ON / 0.2 sec OFF  
**Auto stroke:** Continuous ON

NOTE: For additional operating information consult PAM24-27 Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

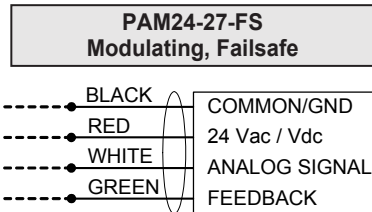


## PAM24-27-FS — Install Instructions

27 lb-force — Fail Safe — Modulating

### Wiring: (Cable)

FAILSAFE CONTROLLED BY DIP SWITCHES



### DIP Switches

#### 1) Rotation Direction

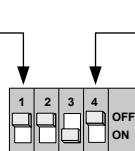
**Switch Off:** Default  
Valve Open  
(Stem Up) - (0Vdc)

**Switch On:** Valve Closed  
(Stem Down) - (0Vdc)

#### 2) Anti-Stick System

**Switch Off:** Deactivated  
**Switch On:** Activated

#### DIP Switches (default settings shown)

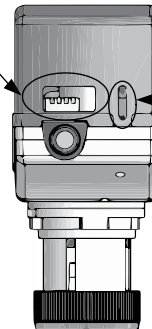


#### 4) Failsafe Direction

**Switch Off:** Valve Normally Open  
(Stem Up)  
**Switch On:** Valve Normally Closed  
(Stem Down)

#### 3) Input Analog - Signal & Feedback

**Switch Off:** 2-10 Vdc  
**Switch On:** 0-10 Vdc



#### LED Status

**Normal:** Flash 0.5 sec ON / 10 sec OFF  
**Error:** Flash 0.2 sec ON / 0.2 sec OFF  
**Auto stroke:** Continuous ON  
**Failsafe charge:** Continuous ON  
**Failsafe operation:** OFF

NOTE: <sup>1</sup>The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PAM24-27-FS Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

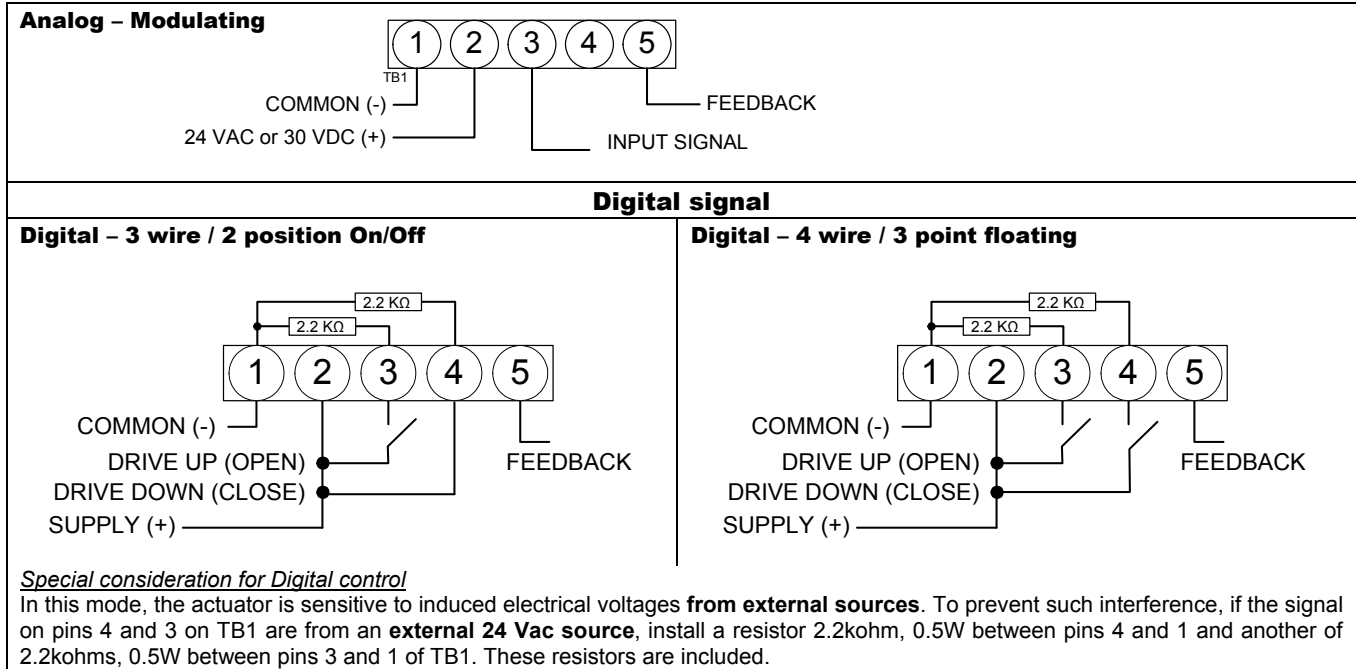
# Simple Set - Actuator Wiring



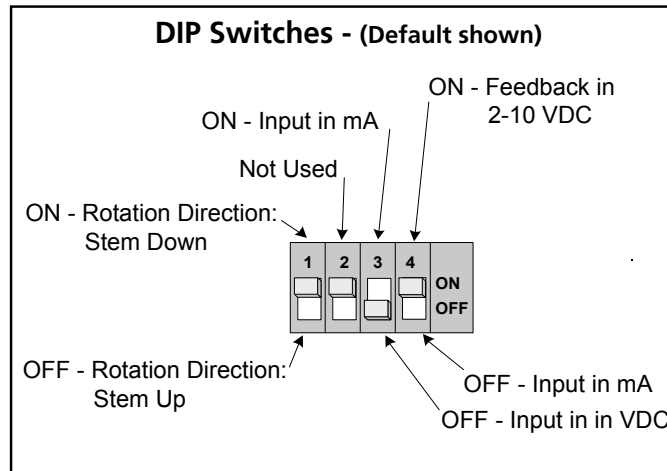
## PAM24-100 — Submittal/Technical Data

100 lb-force — Non-Fail Safe — On/Off, Floating & Modulating

### Wiring: (Terminal)



NOTE: For additional operating information consult PAM24-100 Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



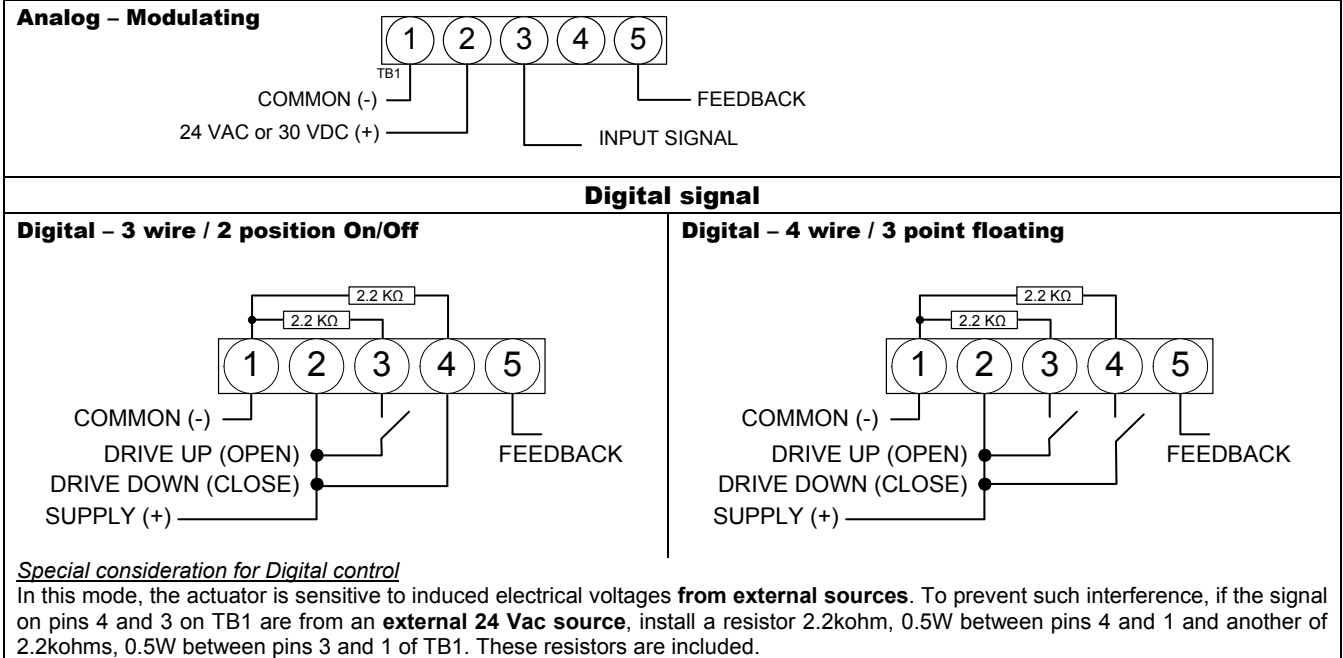
# Simple Set - Actuator Wiring



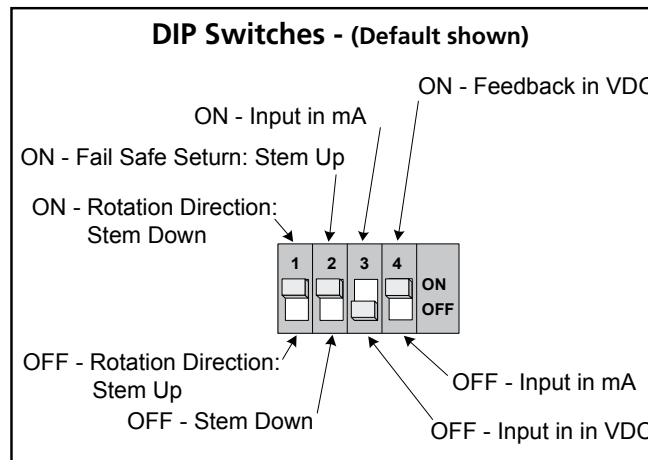
## PAM24-100-FS — Submittal/Technical Data

100 lb-force — Fail Safe — On/Off, Floating & Modulating

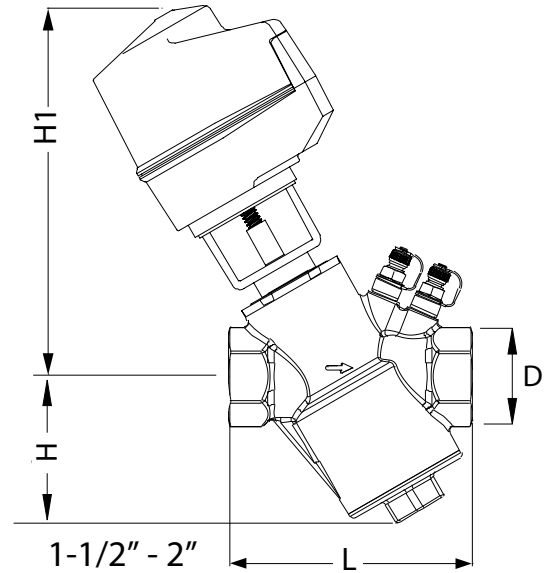
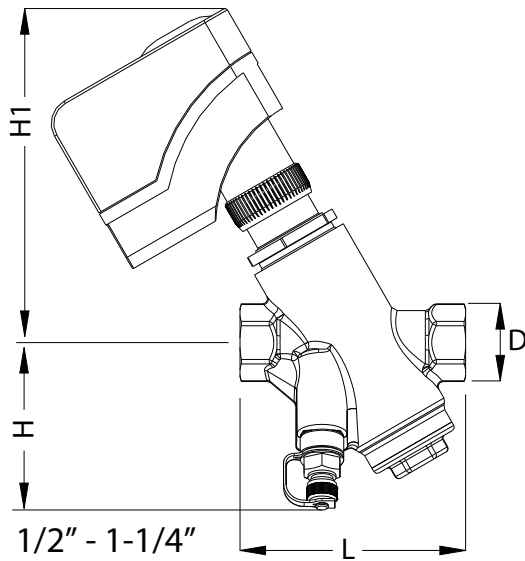
### Wiring: (Terminal)



NOTE: <sup>1</sup>The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PAM24-100-FS Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



# Simple Set - Valve/Actuator Dimensions



## Technical data

| Valve Size          |                          | 1/2"        | 3/4"        | 1"          | 1-1/4"       | 1-1/2"       | 2"           |
|---------------------|--------------------------|-------------|-------------|-------------|--------------|--------------|--------------|
| Flow Rate           | Liters per hour (l/h)    | 75 - 700    | 77 - 738    |             |              |              |              |
|                     | Low Flow Cartridge       | 329 - 1649  | 361 - 1801  | 400 - 2051  | 729 - 3000   | 650 - 8199   | 650 - 14740  |
| Flow Rate           | Gallons per minute (gpm) | .33 - 3.08  | .34 - 3.25  |             |              |              |              |
|                     | Std. Flow Cartridge      | 1.45 - 7.26 | 1.60 - 7.90 | 1.76 - 9.03 | 3.21 - 13.21 | 2.86 - 36.10 | 2.86 - 64.90 |
| Dimension in., (mm) | L                        | 3.62, (92)  | 3.62, (92)  | 3.78, (96)  | 5.04, (128)  | 5.71, (145)  | 6.34, (161)  |
|                     | H                        | 2.68, (68)  | 2.68, (68)  | 2.68, (68)  | 3.03, (77)   | 3.43, (87)   | 3.70, (94)   |
|                     | H1                       | 7.88, (200) | 7.88, (200) | 7.88, (200) | 6.04, (153)  | 16.00, (406) | 15.25, (387) |
|                     | D                        | 1.18, (30)  | 1.42, (36)  | 1.73, (44)  | 2.05, (52)   | 2.33, (59)   | 3.07, (78)   |
| Weight              | lbs, (kg)                | 2.5, (1.14) | 2.5, (1.14) | 2.6, (1.18) | 4.1, (1.86)  | 7.9, (3.60)  | 10.3, (4.70) |

Dimensions may vary, depending on the actuator.  
 Dimensions are shown for the largest actuator currently available.  
 Dimensions are shown in inches and are approximate.

## Simple Set - Model Number Matrix

| SS = Simple Set   | Sample Model Number | SS | 1 | N | S | x | /PA24-27 |
|---|---------------------|----|---|---|---|---|----------|
| Prefix: Simple Set  |                     |    |   |   |   |   |          |
| Size of Valve   |                     |    |   |   |   |   |          |
| End Connections - NPT   |                     |    |   |   |   |   |          |
| Flow Range Pressure Cartridge - (H) High, (L) Low or (S) Standard |                     |    |   |   |   |   |          |
| Flow Setting GPM. See Charts on Page SS-10 & SS-11                |                     |    |   |   |   |   |          |
| Actuator Selection  |                     |    |   |   |   |   |          |



# Simple Set - How it Works

## Function

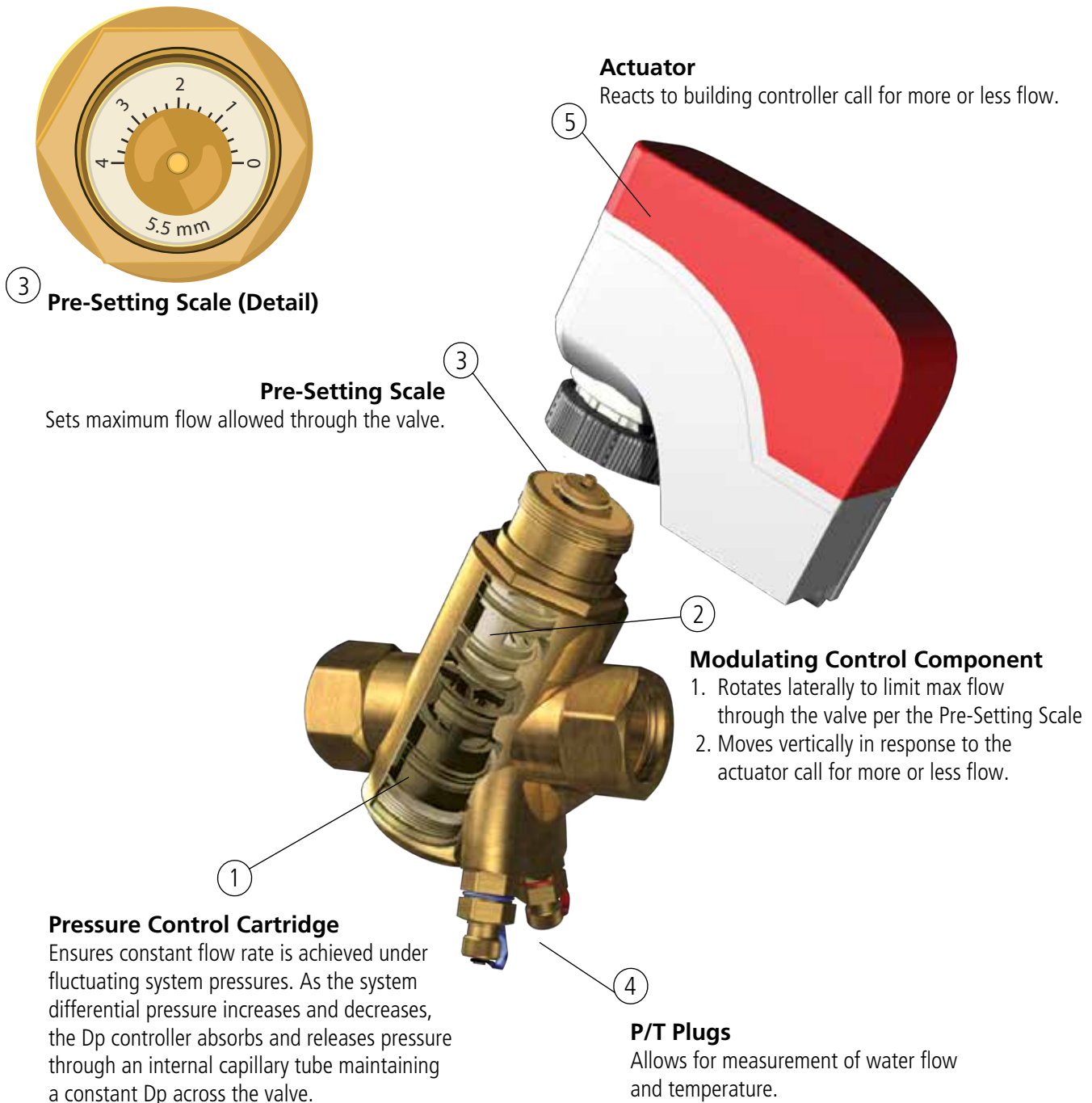
Unlike conventional control valve sizing where valves are sized to a Cv, the Simple Set valves are simply sized for flow and pipe size. Refer to the ordering table for the wide range of flow values available.

### IMPORTANT:

**Valve diameter should NEVER exceed pipe diameter!**

## Design

The design of Simple Set combines high performance with small size and compact construction. The main components of the valve are:



③ **Pre-Setting Scale (Detail)**

**Pre-Setting Scale**  
Sets maximum flow allowed through the valve.

**Actuator**  
Reacts to building controller call for more or less flow.

### Modulating Control Component

1. Rotates laterally to limit max flow through the valve per the Pre-Setting Scale
2. Moves vertically in response to the actuator call for more or less flow.

### Pressure Control Cartridge

Ensures constant flow rate is achieved under fluctuating system pressures. As the system differential pressure increases and decreases, the Dp controller absorbs and releases pressure through an internal capillary tube maintaining a constant Dp across the valve.

### P/T Plugs

Allows for measurement of water flow and temperature.

# Simple Set - Flow Rate Charts

| 1/2"          |         | 1/2" Standard Flow Rate Cartridge |          |          |
|---------------|---------|-----------------------------------|----------|----------|
| Model Number  | Pre-Set | Min. PSI                          | Flow l/h | Flow GPM |
| SS-05-N-S-1.5 | 0.3     | 2.3                               | 329.3    | 1.45     |
| SS-05-N-S-1.6 | 0.4     | 2.3                               | 372.5    | 1.64     |
| SS-05-N-S-2.0 | 0.6     | 2.4                               | 458.8    | 2.02     |
| SS-05-N-S-2.4 | 0.8     | 2.4                               | 545.1    | 2.4      |
| SS-05-N-S-2.8 | 1       | 2.5                               | 629.1    | 2.77     |
| SS-05-N-S-3.2 | 1.2     | 2.6                               | 715.4    | 3.15     |
| SS-05-N-S-3.5 | 1.4     | 2.6                               | 799.5    | 3.52     |
| SS-05-N-S-3.9 | 1.6     | 2.6                               | 883.5    | 3.89     |
| SS-05-N-S-4.3 | 1.8     | 2.6                               | 967.6    | 4.26     |
| SS-05-N-S-4.6 | 2       | 2.6                               | 1049.3   | 4.62     |
| SS-05-N-S-5.0 | 2.2     | 2.6                               | 1131.1   | 4.98     |
| SS-05-N-S-5.3 | 2.4     | 2.6                               | 1210.6   | 5.33     |
| SS-05-N-S-5.7 | 2.6     | 2.6                               | 1287.8   | 5.67     |
| SS-05-N-S-6.0 | 2.8     | 2.6                               | 1360.5   | 5.99     |
| SS-05-N-S-6.3 | 3       | 2.6                               | 1430.9   | 6.3      |
| SS-05-N-S-6.6 | 3.2     | 2.6                               | 1492.2   | 6.57     |
| SS-05-N-S-6.8 | 3.4     | 2.6                               | 1544.4   | 6.8      |
| SS-05-N-S-7.0 | 3.6     | 2.6                               | 1592.1   | 7.01     |
| SS-05-N-S-7.2 | 3.8     | 2.6                               | 1628.5   | 7.17     |
| SS-05-N-S-7.3 | 4       | 2.6                               | 1648.9   | 7.26     |

| 1/2"          |         | 1/2" Low Flow Rate Cartridge |          |          |
|---------------|---------|------------------------------|----------|----------|
| Model Number  | Pre-Set | Min. PSI                     | Flow l/h | Flow GPM |
| SS-05-N-L-0.3 | 0.3     | 2.2                          | 75.0     | 0.33     |
| SS-05-N-L-0.4 | 0.4     | 2.2                          | 81.8     | 0.36     |
| SS-05-N-L-0.5 | 0.6     | 2.2                          | 106.7    | 0.47     |
| SS-05-N-L-0.6 | 0.8     | 2.2                          | 134.0    | 0.59     |
| SS-05-N-L-0.7 | 1       | 2.5                          | 168.1    | 0.74     |
| SS-05-N-L-0.8 | 1.2     | 2.5                          | 190.8    | 0.84     |
| SS-05-N-L-1.0 | 1.4     | 2.5                          | 222.6    | 0.98     |
| SS-05-N-L-1.1 | 1.6     | 2.5                          | 256.7    | 1.13     |
| SS-05-N-L-1.3 | 1.8     | 2.5                          | 290.7    | 1.28     |
| SS-05-N-L-1.4 | 2       | 2.5                          | 327.1    | 1.44     |
| SS-05-N-L-1.6 | 2.2     | 2.5                          | 365.7    | 1.61     |
| SS-05-N-L-1.8 | 2.4     | 2.5                          | 404.3    | 1.78     |
| SS-05-N-L-2.0 | 2.6     | 2.5                          | 442.9    | 1.95     |
| SS-05-N-L-2.1 | 2.8     | 2.5                          | 481.5    | 2.12     |
| SS-05-N-L-2.3 | 3       | 2.5                          | 520.1    | 2.29     |
| SS-05-N-L-2.5 | 3.2     | 2.5                          | 556.5    | 2.45     |
| SS-05-N-L-2.6 | 3.4     | 2.5                          | 592.8    | 2.61     |
| SS-05-N-L-2.8 | 3.6     | 2.5                          | 629.1    | 2.77     |
| SS-05-N-L-3.0 | 3.8     | 2.5                          | 672.3    | 2.96     |
| SS-05-N-L-3.1 | 4       | 2.5                          | 699.5    | 3.08     |

| 3/4"          |         | 3/4" Standard Flow Cartridge |          |          |
|---------------|---------|------------------------------|----------|----------|
| Model Number  | Pre-Set | Min. PSI                     | Flow l/h | Flow GPM |
| SS-75-N-S-1.6 | 0.3     | 2.5                          | 361.1    | 1.59     |
| SS-75-N-S-1.8 | 0.4     | 2.5                          | 402.0    | 1.77     |
| SS-75-N-S-2.1 | 0.6     | 2.5                          | 483.8    | 2.13     |
| SS-75-N-S-2.5 | 0.8     | 2.5                          | 565.5    | 2.49     |
| SS-75-N-S-2.9 | 1       | 2.5                          | 649.6    | 2.86     |
| SS-75-N-S-3.2 | 1.2     | 2.6                          | 726.8    | 3.2      |
| SS-75-N-S-3.6 | 1.4     | 2.6                          | 810.8    | 3.57     |
| SS-75-N-S-4.0 | 1.6     | 2.6                          | 913.0    | 4.02     |
| SS-75-N-S-4.4 | 1.8     | 2.6                          | 1006.2   | 4.43     |
| SS-75-N-S-4.8 | 2       | 2.6                          | 1099.3   | 4.84     |
| SS-75-N-S-5.3 | 2.2     | 2.6                          | 1194.7   | 5.26     |
| SS-75-N-S-5.7 | 2.4     | 2.6                          | 1290.1   | 5.68     |
| SS-75-N-S-6.1 | 2.6     | 2.6                          | 1385.5   | 6.1      |
| SS-75-N-S-6.5 | 2.8     | 2.6                          | 1476.3   | 6.5      |
| SS-75-N-S-6.9 | 3       | 2.6                          | 1560.3   | 6.87     |
| SS-75-N-S-7.2 | 3.2     | 2.6                          | 1633.0   | 7.19     |
| SS-75-N-S-7.4 | 3.4     | 2.6                          | 1685.3   | 7.42     |
| SS-75-N-S-7.6 | 3.6     | 2.6                          | 1730.7   | 7.62     |
| SS-75-N-S-7.8 | 3.8     | 2.6                          | 1787.5   | 7.87     |
| SS-75-N-S-7.9 | 4       | 2.6                          | 1801.1   | 7.93     |

| 3/4"          |         | 3/4" Low Flow Rate Cartridge |          |          |
|---------------|---------|------------------------------|----------|----------|
| Model Number  | Pre-Set | Min. PSI                     | Flow l/h | Flow GPM |
| SS-75-N-L-0.3 | 0.3     | 2.3                          | 77.2     | 0.34     |
| SS-75-N-L-0.4 | 0.4     | 2.3                          | 81.8     | 0.36     |
| SS-75-N-L-0.5 | 0.6     | 2.3                          | 106.7    | 0.47     |
| SS-75-N-L-0.6 | 0.8     | 2.3                          | 136.3    | 0.6      |
| SS-75-N-L-0.7 | 1       | 2.3                          | 168.1    | 0.74     |
| SS-75-N-L-0.9 | 1.2     | 2.6                          | 197.6    | 0.87     |
| SS-75-N-L-1.0 | 1.4     | 2.6                          | 227.1    | 1.0      |
| SS-75-N-L-1.2 | 1.6     | 2.6                          | 268.0    | 1.18     |
| SS-75-N-L-1.3 | 1.8     | 2.6                          | 304.3    | 1.34     |
| SS-75-N-L-1.5 | 2       | 2.6                          | 345.2    | 1.52     |
| SS-75-N-L-1.7 | 2.2     | 2.6                          | 388.4    | 1.71     |
| SS-75-N-L-1.9 | 2.4     | 2.6                          | 431.5    | 1.9      |
| SS-75-N-L-2.1 | 2.6     | 2.6                          | 474.7    | 2.09     |
| SS-75-N-L-2.3 | 2.8     | 2.6                          | 517.8    | 2.28     |
| SS-75-N-L-2.5 | 3       | 2.6                          | 567.8    | 2.5      |
| SS-75-N-L-2.6 | 3.2     | 2.6                          | 599.6    | 2.64     |
| SS-75-N-L-2.8 | 3.4     | 2.6                          | 635.9    | 2.8      |
| SS-75-N-L-3.0 | 3.6     | 2.6                          | 672.3    | 2.96     |
| SS-75-N-L-3.1 | 3.8     | 2.6                          | 706.4    | 3.11     |
| SS-75-N-L-3.3 | 4       | 2.6                          | 738.2    | 3.25     |

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# Simple Set - Flow Rate Charts

| 1"           |         | 1" Standard Flow Rate Cartridge |          |          |
|--------------|---------|---------------------------------|----------|----------|
| Model Number | Pre-Set | Min. PSI                        | Flow l/h | Flow GPM |
| SS-1-N-S-1.8 | 0.3     | 3.9                             | 399.7    | 1.76     |
| SS-1-N-S-2.0 | 0.4     | 3.9                             | 442.9    | 1.95     |
| SS-1-N-S-2.3 | 0.6     | 3.9                             | 531.5    | 2.34     |
| SS-1-N-S-2.8 | 0.8     | 3.9                             | 629.1    | 2.77     |
| SS-1-N-S-3.2 | 1       | 3.9                             | 729.1    | 3.21     |
| SS-1-N-S-3.7 | 1.2     | 3.9                             | 835.8    | 3.68     |
| SS-1-N-S-4.2 | 1.4     | 3.9                             | 944.8    | 4.16     |
| SS-1-N-S-4.7 | 1.6     | 3.9                             | 1056.1   | 4.65     |
| SS-1-N-S-5.2 | 1.8     | 3.9                             | 1169.7   | 5.15     |
| SS-1-N-S-5.6 | 2       | 4.1                             | 1281.0   | 5.64     |
| SS-1-N-S-6.1 | 2.2     | 4.1                             | 1390.0   | 6.12     |
| SS-1-N-S-6.6 | 2.4     | 4.1                             | 1494.5   | 6.58     |
| SS-1-N-S-7.0 | 2.6     | 4.1                             | 1596.7   | 7.03     |
| SS-1-N-S-7.5 | 2.8     | 4.1                             | 1692.1   | 7.45     |
| SS-1-N-S-7.8 | 3       | 4.1                             | 1780.7   | 7.84     |
| SS-1-N-S-8.2 | 3.2     | 4.2                             | 1857.9   | 8.18     |
| SS-1-N-S-8.5 | 3.4     | 4.2                             | 1919.2   | 8.45     |
| SS-1-N-S-8.7 | 3.6     | 4.2                             | 1969.2   | 8.67     |
| SS-1-N-S-8.9 | 3.8     | 4.2                             | 2016.9   | 8.88     |
| SS-1-N-S-9.0 | 4       | 4.2                             | 2050.9   | 9.03     |

| 1-1/4"          |         | 1-1/4" Standard Flow Rate Cartridge |          |          |
|-----------------|---------|-------------------------------------|----------|----------|
| Model Number    | Pre-Set | Min. PSI                            | Flow l/h | Flow GPM |
| SS-125-N-S-3.2  | 0.3     | 2.9                                 | 729.1    | 3.21     |
| SS-125-N-S-3.6  | 0.4     | 2.9                                 | 808.6    | 3.56     |
| SS-125-N-S-4.3  | 0.6     | 2.9                                 | 974.4    | 4.29     |
| SS-125-N-S-5.1  | 0.8     | 2.9                                 | 1147.0   | 5.05     |
| SS-125-N-S-5.8  | 1       | 2.9                                 | 1319.6   | 5.81     |
| SS-125-N-S-6.6  | 1.2     | 2.9                                 | 1494.5   | 6.58     |
| SS-125-N-S-7.3  | 1.4     | 2.9                                 | 1667.1   | 7.34     |
| SS-125-N-S-8.1  | 1.6     | 3                                   | 1835.2   | 8.08     |
| SS-125-N-S-8.8  | 1.8     | 3                                   | 1996.4   | 8.79     |
| SS-125-N-S-9.5  | 2       | 3.1                                 | 2150.9   | 9.47     |
| SS-125-N-S-10.1 | 2.2     | 3.1                                 | 2294.0   | 10.1     |
| SS-125-N-S-10.7 | 2.4     | 3.2                                 | 2428.0   | 10.69    |
| SS-125-N-S-11.2 | 2.6     | 3.2                                 | 2548.3   | 11.22    |
| SS-125-N-S-11.7 | 2.8     | 3.3                                 | 2655.1   | 11.69    |
| SS-125-N-S-12.1 | 3       | 3.3                                 | 2750.5   | 12.11    |
| SS-125-N-S-12.5 | 3.2     | 3.4                                 | 2830.0   | 12.46    |
| SS-125-N-S-12.7 | 3.4     | 3.4                                 | 2893.6   | 12.74    |
| SS-125-N-S-13.0 | 3.6     | 3.5                                 | 2943.5   | 12.96    |
| SS-125-N-S-13.1 | 3.8     | 3.5                                 | 2975.3   | 13.1     |
| SS-125-N-S-13.2 | 4       | 3.5                                 | 3000.3   | 13.21    |

| 1-1/2"          |         | 1-1/2" Standard Flow Rate Cartridge |          |          |
|-----------------|---------|-------------------------------------|----------|----------|
| Model Number    | Pre-Set | Min. PSI                            | Flow l/h | Flow GPM |
| SS-150-N-S-2.9  | 0.3     | 2.2                                 | 649.6    | 2.86     |
| SS-150-N-S-3.4  | 0.4     | 2.2                                 | 772.2    | 3.40     |
| SS-150-N-S-5.5  | 0.6     | 2.3                                 | 1249.2   | 5.50     |
| SS-150-N-S-7.9  | 0.8     | 2.3                                 | 1794.3   | 7.90     |
| SS-150-N-S-10.1 | 1       | 2.3                                 | 2294.0   | 10.10    |
| SS-150-N-S-12.1 | 1.2     | 2.3                                 | 2748.2   | 12.10    |
| SS-150-N-S-14.0 | 1.4     | 2.4                                 | 3179.7   | 14.00    |
| SS-150-N-S-15.9 | 1.6     | 2.5                                 | 3611.3   | 15.90    |
| SS-150-N-S-18.0 | 1.8     | 2.6                                 | 4088.2   | 18.00    |
| SS-150-N-S-20.2 | 2       | 2.7                                 | 4587.9   | 20.20    |
| SS-150-N-S-22.6 | 2.2     | 2.9                                 | 5133.0   | 22.60    |
| SS-150-N-S-25.1 | 2.4     | 3.1                                 | 5700.8   | 25.10    |
| SS-150-N-S-27.5 | 2.6     | 3.4                                 | 6245.9   | 27.50    |
| SS-150-N-S-29.7 | 2.8     | 3.6                                 | 6745.6   | 29.70    |
| SS-150-N-S-31.7 | 3       | 3.9                                 | 7199.9   | 31.70    |
| SS-150-N-S-33.3 | 3.2     | 4.1                                 | 7563.3   | 33.30    |
| SS-150-N-S-34.6 | 3.4     | 4.2                                 | 7858.5   | 34.60    |
| SS-150-N-S-35.5 | 3.6     | 4.2                                 | 8062.9   | 35.50    |
| SS-150-N-S-36.0 | 3.8     | 4.2                                 | 8176.5   | 36.00    |
| SS-150-N-S-36.1 | 4       | 4.2                                 | 8199.2   | 36.10    |

| 2"            |         | 2" Standard Flow Rate Cartridge |          |          |
|---------------|---------|---------------------------------|----------|----------|
| Model Number  | Pre-Set | Min. PSI                        | Flow l/h | Flow GPM |
| SS-2-N-S-2.9  | 0.3     | 4.4                             | 649.6    | 2.86     |
| SS-2-N-S-4.5  | 0.4     | 4.4                             | 1022.1   | 4.50     |
| SS-2-N-S-9.5  | 0.6     | 4.4                             | 2157.7   | 9.50     |
| SS-2-N-S-13.8 | 0.8     | 4.4                             | 3134.3   | 13.80    |
| SS-2-N-S-18.1 | 1       | 4.4                             | 4111.0   | 18.10    |
| SS-2-N-S-22.4 | 1.2     | 4.4                             | 5087.6   | 22.40    |
| SS-2-N-S-26.6 | 1.4     | 4.4                             | 6041.5   | 26.60    |
| SS-2-N-S-30.6 | 1.6     | 4.4                             | 6950.0   | 30.60    |
| SS-2-N-S-34.3 | 1.8     | 4.4                             | 7790.4   | 34.30    |
| SS-2-N-S-37.8 | 2       | 4.4                             | 8585.3   | 37.80    |
| SS-2-N-S-41.3 | 2.2     | 4.4                             | 9380.3   | 41.30    |
| SS-2-N-S-44.9 | 2.4     | 4.5                             | 10197.9  | 44.90    |
| SS-2-N-S-48.5 | 2.6     | 4.6                             | 11015.5  | 48.50    |
| SS-2-N-S-52.2 | 2.8     | 4.7                             | 11855.9  | 52.20    |
| SS-2-N-S-55.6 | 3       | 4.8                             | 12628.1  | 55.60    |
| SS-2-N-S-58.4 | 3.2     | 4.9                             | 13264.1  | 58.40    |
| SS-2-N-S-60.6 | 3.4     | 4.9                             | 13763.8  | 60.60    |
| SS-2-N-S-62.4 | 3.6     | 5.0                             | 14172.6  | 62.40    |
| SS-2-N-S-63.9 | 3.8     | 5.0                             | 14513.3  | 63.90    |
| SS-2-N-S-64.9 | 4       | 5.1                             | 14740.4  | 64.90    |

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