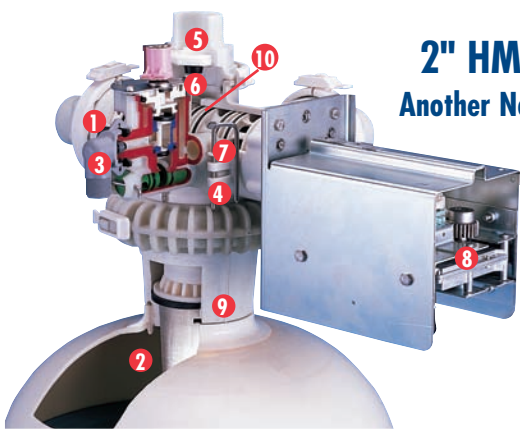


## Commercial Heavy Duty Water Softening System With 2" High Molecular Weight (HM) Plastic Valve

All systems are available in single, duplex, triplex, and quadplex operation.

Models: PA102, PA132, PA162, PA192, PA252, and PA322



**2" HM Plastic Valve**  
Another North Star Innovation

- |  |  |
|--|--|
| <b>1</b> Snap Clamp Rings For Ease Of Connecting | <b>7</b> Full 2" Ported Flow Passage In Valve Housing                              |
| <b>2</b> Screened Top Distributor                | <b>8</b> High Torque 24 V-DC Motor   |
| <b>3</b> Brine Make-Up Flow Control              | <b>9</b> Valve Tank Adaptor Allows Easy Access Into Tank With Clamp Ring Connector |
| <b>4</b> Pin Quick Disconnect Injector Housing   | <b>10</b> High-Strength Non-Corrosive Piston                                       |
| <b>5</b> 2" NPT Union Connections                |  |
| <b>6</b> Adjustable Backwash Flow Control        |  |



### Features

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>■ Innovative 2" HM Plastic Valve</li><li>■ Fully Programmable</li><li>■ Electronic Demand Control Module</li><li>■ Selectable for Parallel, Parallel Delayed, Alternating, and Peak Flow Demand</li><li>■ Counter-Current Brining</li><li>■ Washed Quartz Underbedding</li><li>■ Water Usage is Metered by Turbine</li></ul> | <ul style="list-style-type: none"><li>■ Safe 24-Volt Electronics</li><li>■ Self-Cleaning Upper and Lower Distributors</li><li>■ High-Density Salt Storage Tank</li><li>■ Exceptional Flow Rates</li><li>■ SPA Diagnostic Capabilities</li><li>■ Non-Volatile Memory</li><li>■ Non-Corrosive Plastic Piston</li></ul> |
|--|--|

# Specifications

All systems are available in single, duplex, triplex, and quadplex operation.

| Model                    |                                | PA102             | PA132        | PA162        | PA192        | PA252        | PA322        |
|--------------------------|--------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|
|                          | Salt Dosage*                   |                   |              |              |              |              |              |
|                          | Grains Capacity at Salt Dosage | Grains Capacity** |              |              |              |              |              |
|                          | 4 lbs./cu. ft.                 | 54,000            | 72,000       | 90,000       | 108,000      | 144,000      | 180,000      |
|                          | 6 lbs./cu. ft.                 | 72,000            | 96,000       | 120,000      | 144,000      | 192,000      | 240,000      |
|                          | 8 lbs./cu. ft.                 | 84,000            | 112,000      | 140,000      | 168,000      | 224,000      | 280,000      |
|                          | 10 lbs./cu. ft.                | 93,000            | 124,000      | 155,000      | 186,000      | 248,000      | 310,000      |
|                          | 12 lbs./cu. ft.                | 99,000            | 132,000      | 165,000      | 198,000      | 264,000      | 330,000      |
| Resin Tank Size (in)     |                                | 17 x 58           | 17 x 58      | 17 x 72      | 24 x 72      | 24 x 72      | 24 x 72      |
| Resin Quantity (cu ft)   |                                | 3                 | 4            | 5            | 6            | 8            | 10           |
| Connecting Pipe Size     |                                | 2" NPT            | 2" NPT       | 2" NPT       | 2" NPT       | 2" NPT       | 2" NPT       |
| Salt Tank Size (in)      |                                | 24 x 50           | 24 x 50      | 24 x 50      | 31 x 51      | 31 x 51      | 31 x 51      |
| Salt Tank Capacity (lb)  |                                | 1000              | 1000         | 1000         | 1500         | 1500         | 1500         |
| Operating Pressure       |                                | 30 – 125 psi      | 30 – 125 psi | 30 – 125 psi | 30 – 125 psi | 30 – 125 psi | 30 – 125 psi |
| Operating Temperature    |                                | 35 – 100°F        | 35 – 100°F   | 35 – 100°F   | 35 – 100°F   | 35 – 100°F   | 35 – 100°F   |
| Max. Drain Flow (gpm)    |                                | 7                 | 7            | 7            | 12           | 12           | 12           |
| Recharge Water Use (gal) |                                | 151               | 166          | 181          | 271          | 302          | 332          |
| Max. Clear Water Iron    |                                | 5 ppm             | 5 ppm        | 5 ppm        | 5 ppm        | 5 ppm        | 5 ppm        |
| Electrical Rating        |                                | 24V / 60 Hz       | 24V / 60 Hz  | 24V / 60 Hz  | 24V / 60 Hz  | 24V / 60 Hz  | 24V / 60 Hz  |

\*Salt dosages can be set to maintain desired efficiencies or changed to auto adjusting, salt-efficient demand, or boiler operation. See manual for details.

\*\*Grains capacity is for counter-current regeneration sizing purposes. The actual capacity could be 5% – 10% greater than shown for each salt dosage.

# Operational Flows\*

| Model | Flow Rate (GPM) and Pressure (PSI) Loss (ΔP) |        |        |        |         |         |        |        |        |         |         |         |
|-------|--|--------|--------|--------|---------|---------|--------|--------|--------|---------|---------|---------|
|       | 10 GPM                                       | 20 GPM | 30 GPM | 40 GPM | 50 GPM  | 60 GPM  | 70 GPM | 80 GPM | 90 GPM | 100 GPM | 110 GPM | 120 GPM |
| PA102 | 1.5 ΔP                                       | 3.5 ΔP | 6 ΔP   | 9 ΔP   | 12.5 ΔP | 16.5 ΔP | -      | -      | -      | -       | -       | -       |
| PA132 | 2 ΔP   | 4.5 ΔP | 7.5 ΔP | 11 ΔP  | 15.5 ΔP | 20 ΔP   | 25 ΔP  | -      | -      | -       | -       | -       |
| PA162 | 2.5 ΔP                                       | 5 ΔP   | 9 ΔP   | 13 ΔP  | 18 ΔP   | 23 ΔP   | 29 ΔP  | 35 ΔP  | -      | -       | -       | -       |
| PA192 | 1 ΔP   | 2 ΔP   | 4 ΔP   | 6.5 ΔP | 9 ΔP    | 12 ΔP   | 15 ΔP  | 19 ΔP  | 23 ΔP  | -       | -       | -       |
| PA252 | 1 ΔP   | 2.5 ΔP | 4.5 ΔP | 7 ΔP   | 9.5 ΔP  | 12.5 ΔP | 16 ΔP  | 20 ΔP  | 24 ΔP  | 28 ΔP   | -       | -       |
| PA322 | 1 ΔP   | 3 ΔP   | 5 ΔP   | 7.5 ΔP | 10.5 ΔP | 14 ΔP   | 18 ΔP  | 22 ΔP  | 26 ΔP  | 31 ΔP   | -       | -       |

## Key:

- System design flow rates
- For intermittent use only
- Not for use on these flow rates

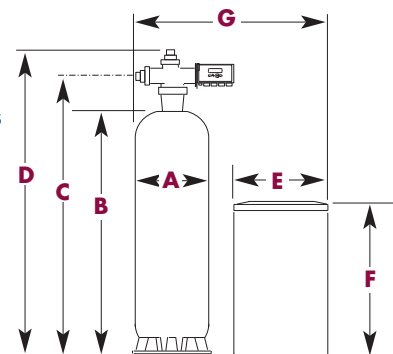
\*The above data was obtained from tests run by the University of Minnesota St. Anthony Falls Engineering Lab. All specifications listed above are for SINGLE unit operation.

# Dimensions

| Model               | A Resin Tank Diameter | B Resin Tank Height | C Inlet-Outlet Height | D Overall Height | E Brine Tank Diameter | F Brine Tank Height | G Single |
|---------------------|-----------------------|---------------------|-----------------------|------------------|-----------------------|---------------------|----------|
| PA102, PA132        | 17"                   | 58"                 | 67"                   | 72.5"            | 24"                   | 50"                 | 41"      |
| PA162               | 17"                   | 72"                 | 81"                   | 86.5"            | 24"                   | 50"                 | 47"      |
| PA192, PA252, PA322 | 24"                   | 72"                 | 81"                   | 86.5"            | 31"                   | 51"                 | 60"      |

Duplex = 1 Brine Tank  
 Triplex = 2 Brine Tanks  
 Quadplex = 2 Brine Tanks

**Note:** Dimensions for duplex, triplex, and quadplex are calculated using the number of brine tanks listed above.



The North Star Water Conditioning Commercial Heavy Duty Water Softener is subject to a limited warranty that may give you specific rights. A copy of the warranty in the Professional Advantage Series installation manual. Please read the warranty carefully before installing or using a North Star Water Conditioning Water Softener.



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