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**ASSE • R-0001**  
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**CSI DIVISION:**

23 30 00 Plumbing Equipment

**CSI SECTION:**

22 31 13 Residential Domestic Water Softeners

**JASON'S WATER SYSTEMS MFG., INC.**

627 West Rhapsody Drive  
San Antonio, TX 78216

*Water Softener*

MODEL NUMBERS: 3000, 4000, and 5000

**SCOPE OF COMPATIBILITY WITHIN REPORT:**

- 2015, 2012, and 2009 editions of the Uniform Plumbing Code (UPC)
- 2015, 2012, and 2009 editions of the International Residential Code (IRC)
- 2015, 2012, and 2009 editions of the International Plumbing Code (IPC)
- NSF 42-2014, NSF 44-2014

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**ASSE International**

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Division: 22 30 00 Plumbing Equipment  
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**Jason Water Model 3000, 4000, 5000**  
**Jason’s Water Systems Mfg., Inc.**

Model 4000: 14psi @ 17.0gpm (C<sub>v</sub> of 4.5)  
(97kPa @ 77.3L/min)

Model 5000: 12psi @ 17.9gpm (C<sub>v</sub> of 5.2)  
(83kPa @ 81.4L/min)

The maximum rated flow for each model is:

Model	Max GPM
3000	14.0
4000	17.0
5000	17.9

**1.0 Report’s Scope of Compatibility**

- 2015, 2012, and 2009 Uniform Plumbing Code® (UPC)
- 2015, 2012, and 2009 International Residential Code® (IRC)
- 2015, 2012, and 2009 International Plumbing Code® (IPC)
- NSF 44
- NSF 42

**2.0 Use**

This device is designed to reduce the metal ion content (hardness) of potable water in residential dwellings. The device is not recommended for use for irrigation.

**3.0 Limitations**

Water inlet pressure shall be 20-120psi (138-827kPa). Surrounding temperature shall be ≥33°F (≥1°C). Voltage requirements shall be 24VAC @ 60Hz.

Water that is microbiologically unsafe will not be treated by this device. This device will not affect pH nor reduce the total dissolved solids.

**4.0 Description**

**4.1 Flow capacity / Pressure loss**

This device will restrict the flow of incoming water, just as any valve or device in the plumbing system will. The installation instructions give the following values:

Model 3000: 13psi @ 14.0gpm (C<sub>v</sub> of 3.9)  
(89kPa @ 63.6L/min)

The pressure loss for each model is a function of the flow rate. Pressure loss is converted to a length of smooth pipe in the below tables in order to more easily apply it to a water supply capacity assessment. Note that the length of pipe increases with diameter as flow resistance is reduced.

**Model 3000**

GPM	Equivalent length of smooth pipe (ft)			
	Ø ½"	Ø ¾"	Ø 1"	Ø 1¼ "
1	3.9	26.7	104.4	299.1
2	4.7	33.1	130.4	376.2
3	5.3	37.1	147.0	425.4
4	5.7	40.2	159.3	462.1
5	6.0	42.6	169.2	491.6
6	6.3	44.6	177.6	516.4
7	6.6	46.4	184.8	537.9
8	6.8	47.9	191.1	556.8
9	7.0	49.3	196.8	573.8
10	7.1	50.6	202.0	589.2
11	7.3	51.7	206.7	603.3
12	7.4	52.8	211.1	616.3
13	7.6	53.8	215.1	628.4
14	7.7	54.7	218.9	639.8

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### Model 4000

GPM	Equivalent length of smooth pipe (ft)			
	Ø ½"	Ø ¾"	Ø 1"	Ø 1¼"
1	2.8	19.5	76.2	218.4
2	3.5	24.2	95.2	274.7
3	3.9	27.1	107.3	310.7
4	4.2	29.3	116.3	337.5
5	4.4	31.1	123.6	359.1
6	4.6	32.6	129.7	377.2
7	4.8	33.9	134.9	392.9
8	4.9	35.0	139.6	406.7
9	5.1	36.0	143.7	419.1
10	5.2	36.9	147.5	430.3
11	5.3	37.8	151.0	440.6
12	5.4	38.6	154.1	450.2
13	5.5	39.3	157.1	459.0
14	5.6	40.0	159.9	467.3
15	5.7	40.6	162.5	475.0
16	5.8	41.2	164.9	482.3
17	5.9	41.7	167.2	489.3

### Model 5000

GPM	Equivalent length of smooth pipe (ft)			
	Ø ½"	Ø ¾"	Ø 1"	Ø 1¼"
1	2.2	15.1	58.9	168.9
2	2.7	18.7	73.6	212.4
3	3.0	21.0	83.0	240.2
4	3.2	22.7	90.0	260.9
5	3.4	24.0	95.6	277.6
6	3.6	25.2	100.3	291.6
7	3.7	26.2	104.3	303.7
8	3.8	27.1	107.9	314.4
9	3.9	27.8	111.1	324.0
10	4.0	28.6	114.0	332.7
11	4.1	29.2	116.7	340.7
12	4.2	29.8	119.2	348.0
13	4.3	30.4	121.5	354.9
14	4.3	30.9	123.6	361.2
15	4.4	31.4	125.6	367.2
16	4.5	31.8	127.5	372.9
17	4.5	32.3	129.3	378.2
18	4.6	32.7	131.0	383.3

#### 4.1.1 UPC – 2015, 2012, 2009 editions

Per Table 611.4 (6-8 in 2009), maximum number of bathroom groups served shall be:

Size of connection (in)	Max number of bathroom groups served
¾	2 plus an additional water closet and lavatory
1	4

Installation of a kitchen sink, dishwasher, laundry tray, and automatic clothes washer are permitted for both sizes.

Note 3 of the table states for "over 4 bathroom groups, the softener size shall be engineered for the specific installation."

See Appendices A and C (L in 2009) for sizing the water supply system. Also, see reports BMS 66 and BMS 79 from the National Bureau of Standards for more information.

#### 4.1.2 IRC – 2015, 2012, 2009 editions

See Appendix P for how to apply the pressure loss to a specific water system design. All pressure losses for valves and connections are converted to a length of pipe in table AP103.3 and figure AP103.3(2).

#### 4.1.3 IPC – 2015, 2012, 2009 editions

See Appendix E for how to size a water piping system.

#### 4.2 Sanitary drainage

This device typically discharges into the potable water supply into the premises. During regeneration it will discharge into the waste

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system for a predetermined time period and volume given its capacity.

*Table 1 - Discharge flows at factory settings.*

Model	Flow		Discharge Volume	
	GPM	L/min	Gal	L
3000	2.2	(8.3)	108	(408)
4000	3.5	(13)	217	(821)
5000	5.0	(19)	420	(1590)

It does not have a pump but rather relies on the pressure from the water supply.

4.2.1 UPC – 2015, 2012, 2009 editions  
Per Table 702.2(2) in 2015, 702.2(b) in 2012, and 7-4 in 2009, this device counts as 1 fixture unit.

4.2.2 IRC – 2015, 2012, 2009 editions  
Per P3003.2, drainage piping shall not be welded, drilled, tapped, or burned.

Per Table P3004.1, the drainage fixture unit (d.f.u.) has not been determined for this device during regeneration while it is discharging.

4.2.3 IPC – 2015, 2012, 2009 editions  
Unlike the IRC,  
Per 705.4.4, brass pipe may be welded.  
Per 705.9.5, copper pipe may be welded.  
Per 705.13.1 and 705.13.2, burned lead pipe joints must be wiped.

Per Table 709.1, the drainage fixture unit has not been determined for this devices during regeneration while it is discharging.

4.3 NSF 42 and 44 listings  
As of the date of issuance of this report, this product is listed by IAPMO R&T to NSF 42-

2014 (file #W-9218) and NSF 44-2014 (file #W-9201). More information can be found by visiting <http://pld.iapmo.org>.

4.3.1 UPC – 2015, 2012, 2009 editions  
Per 611.1, drinking water treatment units are required to meet NSF 42 and NSF 53. Water softeners are required to meet NSF 44.

4.3.2 IRC – 2015, 2012 editions  
Per P2908.1, drinking water treatment units are required to meet NSF 42, NSF 44, NSF 53, NSF 60, or CSA B483.1.

4.3.3 IRC – 2009 edition  
Per P2908.1, drinking water treatment units are required to meet NSF 42, NSF 44, or NSF 53.

4.3.4 IPC – 2015, 2012 editions  
Per 611.1, the requirements are the same as the IRC 2015 and 2012 editions.

4.3.5 IPC – 2009 edition  
Per 611.1, the requirements are the same as the IRC 2009 edition.

## 5.0 Installation

It is recommended that if the water inlet pressure exceeds 80psi (827kPa), install a pressure reducing valve per section 5.3.

It is recommended to test the incoming water for calcium, magnesium, and iron ions, and to test the pH and total dissolved solids (TDS).

5.1 Backflow Protection  
WARNING: Do not install saddle valves or other devices that create direct connections

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from the discharge of the product to a drain line.

#### 5.1.1 UPC – 2009 editions

Per 611.2, discharge shall enter the drainage system by an air gap per Table 603.3.1 or air gap device.

#### 5.1.2 UPC – 2015, 2012 editions

In addition to the statements in 5.1.1, the air gap device shall conform to ASME A112.1.3, NSF 58, or IAPMO PS 65.

#### 5.1.3 IRC – 2009 editions

Per P2908.2 for reverse osmosis units, different from this device, waste shall enter the drainage system through an air gap or an air gap device that meets NSF 58. ASSE recommends that this installation be followed for this device as well.

#### 5.1.4 IRC – 2015, 2012 editions

In addition to the statements in 5.1.3, the air gap or air gap device may also meet CSA B483.1.

#### 5.1.5 IPC – 2009 edition

Per 611.2, the requirements are the same as the IRC 2009 edition.

#### 5.1.6 IPC – 2015, 2012 editions

Per 611.2, the requirements are the same as the IRC 2015 and 2012 editions.

### 5.2 Connection Materials

#### 5.2.1 UPC – 2015, 2012, 2009 editions

Per 611.3, all connection tubing to and from the device is required to comply with NSF 14, NSF 42, NSF 44, NSF 53, NSF 55, NSF 58, or NSF 61. Tubing shall be of the size and material recommended by the manufacturer.

#### 5.2.2 IRC – 2015, 2012, 2009 editions

Per P2908.3, all connection tubing to and from the device is required to comply with NSF 14, NSF 42, NSF 44, NSF 53, NSF 58, or NSF 61.

#### 5.2.3 IPC – 2015, 2012, 2009 editions

Per 611.3, the requirements are the same as the IRC 2015, 2012, and 2009 editions.

### 5.3 Pressure Reducing Valve (PRV)

#### 5.3.1 UPC – 2015, 2012, 2009 editions

Per 608.2, install a PRV if the water supply exceeds 80psi (552kPa). An adequate strainer shall be installed upstream of the PRV if the PRV connection is less than  $\text{Ø}1\text{-}\frac{1}{2}\text{'}$ .

#### 5.3.2 IRC – 2015, 2012, 2009 editions

Per P2903.3.1, when the main pressure exceeds 80psi (552kPa), an approved PRV conforming to ASSE 1003 or CSA B356 “shall be installed on the domestic water branch main or riser at the connection to the water service pipe.”

#### 5.3.3 IPC – 2009 edition

Per 604.8, in order to reduce the pressure to not greater than 80psi (552kPa) at plumbing fixtures, an approved PRV conforming to ASSE 1003 shall be installed with upstream strainer.

#### 5.3.4 IPC – 2009 edition

Per 604.8, the approved PRV shall conform to ASSE 1003 or CSA B356.

### 5.4 Installation Location

The device shall be installed after the water meter, where required. Some residential owners desire to have the device installed

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upstream of their hose bibb or sillcock so that soft water can be accessed outdoors, most commonly for washing vehicles, buildings, etc.

It is not recommended for use in irrigation due to the volume of soft water consumed.

## 6.0 Maintenance

The manufacturer requires that the following items be performed annually. See installation instructions for details:

- Clean the injector;
- Clean the brine refill flow control;
- Clean the backwash flow control;
- Verify the flow meter is functioning. Clean the impeller, if necessary.
- Verify the programming of the control. Reprogram, if necessary.
- Verify the inlet water pressure. Install or adjust the pressure relief valve.

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