

This Product complies with the lead free requirements of NCC Vol 3

### Installation, Maintenance & Troubleshooting Instructions

#### Installation Instructions

1. This valve should be installed by a qualified licensed plumber.
2. Install valve in line with arrow on valve body pointing in direction of flow.
3. Before installing reducing valve, flush out line to remove loose dirt and scale which might damage seal ring and seat.
4. All valves will be furnished with stock settings to reduce to 345kPa.
5. To re-adjust reduced pressure, loosen outer locknut and turn adjustment bolt clockwise (into bell housing) to raise reduced pressure, or counterclockwise (out of bell housing) to lower reduced pressure. May be installed in horizontal or vertical position.

**NOTICE:** Annual inspection and maintenance is required of all plumbing system components. To ensure proper performance and maximum life, this product must be subject to regular inspection, testing and cleaning.

#### Maintenance Instructions

##### HOW TO MAKE REPAIRS

(Shut off service before starting disassembly)

1. Open faucet on dwelling to remove line pressure.
2. Note distance that adjustment bolt protrudes from bell housing. Loosen locknut on adjustment bolt, then turn adjustment bolt out of bell housing to remove spring tension.
3. Unscrew bell housing counterclockwise and remove spring, spring disc and friction ring.
4. Remove cartridge from regulator by gripping retaining bolt with pliers and pulling outwards away from body.
5. Clean screen by removing from cartridge. Ensure both upper and lower o-rings are in place.

##### TO REASSEMBLE:

1. While disassembled, open inlet of water service (ensure safe drainage is provided) to flush out valve body and service line of debris.
2. Replace old cartridge assembly with new cartridge assembly. Push the cartridge into bore in body making sure o-rings seal tight against both the cartridge and body.
3. Replace friction ring, spring disc and bell housing. (Make sure friction ring is installed with raised edge facing up). Tighten bell housing onto body by threading clockwise.
4. Turn adjustment bolt into bell housing to old setting.
5. Enter dwelling and turn on several faucets.
6. Turn on water service. Let water run for several seconds then turn off faucets in dwelling.
7. Adjust regulator to desired pressure by turning adjustment bolt clockwise (into bell housing) to raise pressure or counter clockwise (out of bell housing) to lower pressure.  
NOTE: When reducing pressure open a downstream faucet to relieve pressure.
8. Tighten locknut when desired pressure is achieved.

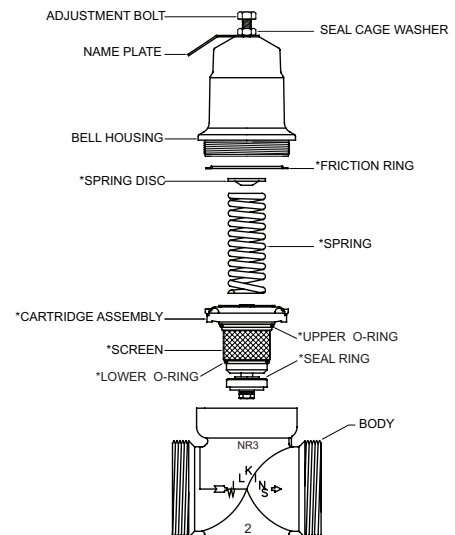
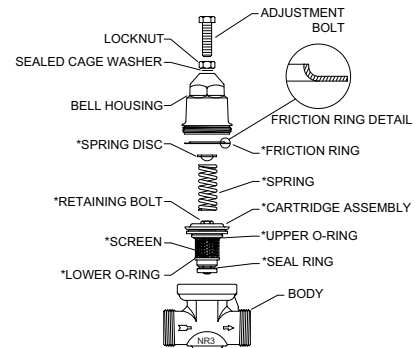
**REGULATORS IN SERIES:** Where the desired pressure reduction is more than a 3 to 1 ratio (i.e. 1500kPa to 500kPa) or where inlet pressure exceeds 1000kPa, multiple regulators in series should be installed to prolong valve life. In these instances, you may require a higher pressure rated initial valve (such as the Zurn 600HLR, adjustable to 850kPa) in the series, followed by the NR3.

**SEALED CAGE WARNING:** Loosen lock washer at adjustment bolt slowly. Look for any trapped water pressure under the sealed cage washer. Relieve pressure before removing bell.

**CAUTION:** Anytime a reducing valve is adjusted, a pressure gauge must be used downstream to verify correct pressure setting. Do not bottom out adjustment bolt on bell housing. Valve may be installed in any position.

It is recommended regulators are protected from water hammer as this can cause premature wear on the valves and is not covered by warranty.

**NOTE:** Failure to adhere to installation instructions will void warranty



## Typical Instructions

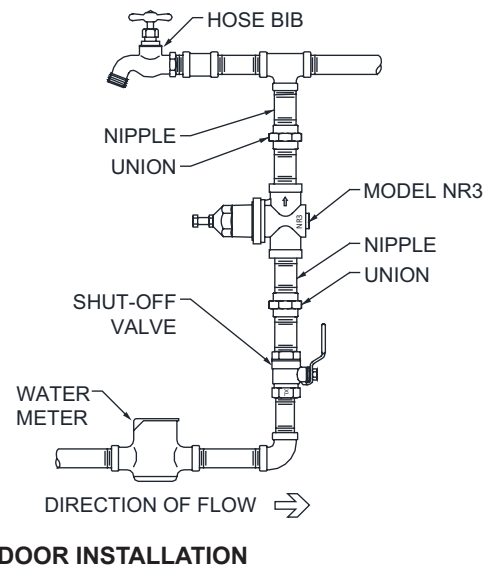
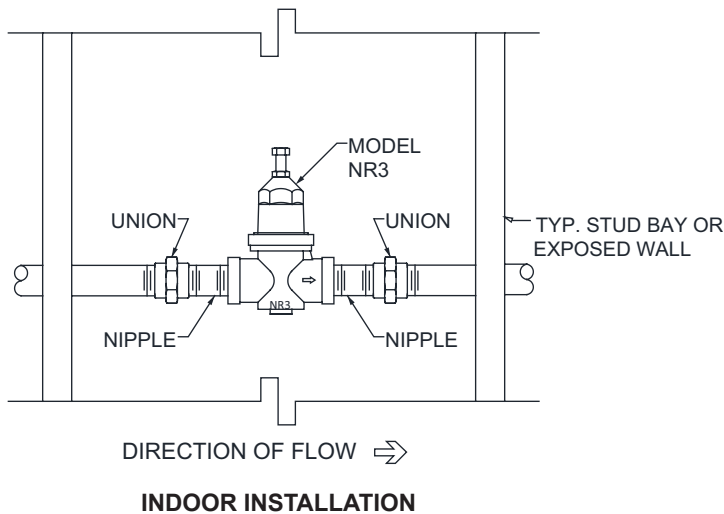
**\*\*Local codes shall govern installation requirements.\*\***

Unless otherwise specified, the assembly shall be mounted in accordance with the latest edition of the local codes.

The Model NR3 may be installed in any position. The assembly shall be installed with sufficient side clearance for testing and maintenance. Multiple installations are recommended for wide demand variations or where the desired pressure reduction is more than 3 to 1 (ie: 1200kPa inlet reduced to 400kPa outlet) or where inlet pressure exceeds 1000kPa. In these instances, you may require a higher pressure rated initial valve (such as the Zurn 600HLR, adjustable to 850kPa) in the series, followed by the NR3. Minimum inlet pressure shall be at least 465kPa.

**CAUTION:** Anytime a reducing valve is adjusted, a pressure gauge must be used downstream to verify correct pressure setting. Do not bottom out bolt on bell housing.

Regulators must be inspected and serviced (if required) annually to maintain suitable performance. Failure to do so may void warranty. It is recommended regulators are protected from water hammer as this can cause premature wear on the valves and is not covered by warranty.



## Troubleshooting

Pipe lines in a water supply system must be of sufficient carrying capacity to maintain adequate pressure at the most remote or highest fixture. Under the maximum probable fixture use, minimum adequate pressure is generally 3.6 to 6.8 kgs. but may be more, depending on the equipment being supplied. Relatively high service pressures which can create high water velocities in pipe lines would allow use of smaller pipes to satisfy fixture use. However, high velocity tends to cause whistling and humming. Reduction of pressure by the use of a pressure reducing valve, in an attempt to eliminate such a condition, may reduce pipe line capacities below that which is adequate for maximum probable use. When high service pressures are in effect, either continuously or periodically, the application of a pressure reducing valve will be successful only when the installed pipe line is of adequate size to satisfy the system demand at the lower pressure. When actual water demands are unknown, the valve size should be no less than the existing pipe size.

### PROBLEM

1. Pressure creeps or builds up in system above the setting of pressure reducing valve.

### POSSIBLE CAUSE OR CAUSES

- A. Thermal expansion of water as it is being heated.
- B. Foreign matter on seating face of seal ring.
- C. Cut, worn or chipped seal ring.
- D. Cut or worn stem o-ring or worn o-ring groove.

### SOLUTION

- a. This is a natural consequence. It may happen each time that the heater runs. A pressure relief valve or expansion tank must be installed. This will not prevent pressure rise but should limit it to a safe level.
  - b. Flush the reducing valve by opening one or two fixture outlets wide. If this does not correct the problem, remove seal ring for cleaning.
  - c. Replace with new seal ring. Temporary repairs may be made by turning the seal ring over.
  - d. Replace with new stem o-ring and/or cartridge.
2. Pressure and fixture flow is unsteady.

- A. Low water supply pressure in mains caused possibly by high area demand during certain periods of the day.
- B. Heavy periodic demands by appliances in the house.

### SOLUTION

- a. This is a water department problem. It is due to the mains being inadequate for the demands made on them.
  - b. House service lines may at times be inadequate for the load. Size of some pipelines may need to be increased. Pressure setting of reducing valve may be too low.
  - c. Try increasing pressure before changing pipelines.
3. Small, inadequate flow from fixtures.

- A. Pipelines to fixtures may be too small or house main supply may be inadequate for normal fixture demand.
- B. Heavy periodic demands by appliances in the house.
- C. Screen clogged with debris.

### SOLUTION

- a. It may be necessary to increase pipe sizes only in some sections of the system leading to the offending appliances or fixtures. Increasing the house service mains might be necessary if small supply is general at all fixtures.
  - b. Raise pressure gradually by readjusting valve until this point is determined.
  - c. Clean screen.
4. Valve appears to be noisy; hums, whistles or chatters

- A. Hum or whistle is usually caused by a high velocity of flow in pipelines causing vibration.
- B. Chatter usually originates with worn seat washer or loosely installed seal ring.

### SOLUTION

- a. Pipelines could be small or too light. Reducing valves could be too small. Pipes and valves being small would accentuate this condition.
- b. Inspect seal ring. If a deep channel appears on seal ring face, replace or use the opposite side.
- c. Frequently noise appears in a faucet or appliance and seems to originate from the reducing valve. There is a general tendency to use streamline piping of a relatively small size. Velocity is naturally high and noise of fast moving water is not unusual.

## Specifications

### Operating Parameters 15-32mm

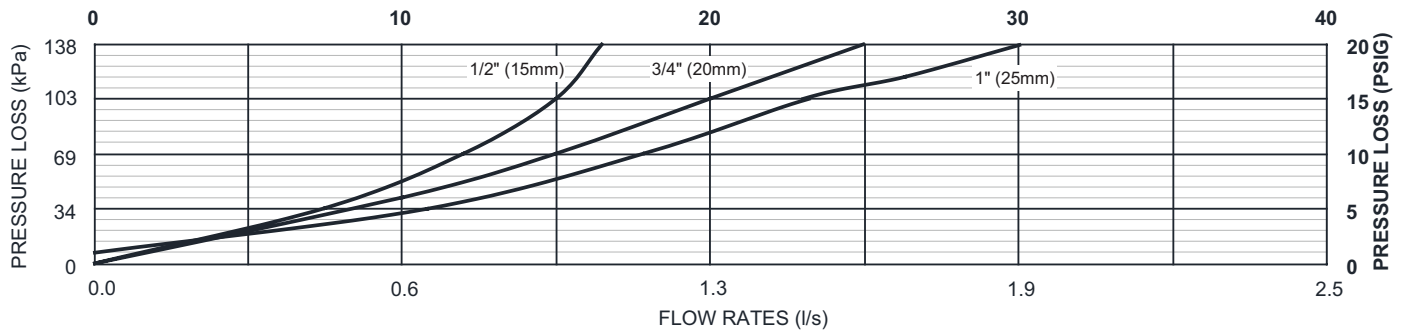
Max. Working Water Pressure	2700kPa
Max. Working Water Temperature	60°C
Reduced Pressure Range	100-515kPa
Factory Preset	500kPa
Maximum Reduction	3 to 1

### Operating Parameters 40-50mm

Max. Working Water Pressure	2100kPa
Max. Working Water Temperature	60°C
Reduced Pressure Range	170-515kPa
Factory Preset	500kPa
Maximum Reduction	3 to 1

## Flow Characteristics

**MODEL NR3 15mm, 20mm & 25mm (STANDARD & METRIC)**  
FLOW RATES (GPM)



**MODEL NR3 32mm, 40mm & 50mm (STANDARD & METRIC)**  
FLOW RATES (GPM)

