



INSTALLATION INSTRUCTIONS

Read and study entire booklet carefully before beginning installation. Use only Nelson accessories and replacement parts. Save this booklet. Call if you have questions.

SERIES 300 WATERERS



CONTACT NELSON FOR INFORMATION AND GUIDANCE

If you need help concerning installation or maintenance, phone Nelson's Customer Service Department. Contact Nelson to order waterers, parts, parts lists, maintenance guides, installation instructions, sales brochures and other helpful information.

NELSON MANUFACTURING COMPANY
CUSTOMER SERVICE DEPARTMENT
3049 12TH STREET S.W.
CEDAR RAPIDS, IOWA 52404



To place an order for
products or parts:

Phone: 888-844-6606
www.nelsonmfg.com

Monday-Friday 7:30-5:00 CST



OPERATION

Action of the water bowl is as follows: Float pan controls the water by its action on the valve plunger. When filled, the float pan loses buoyancy and sinks, thereby pushing down on valve plunger which shuts off water. When the animal drinks, the pan floats, taking load off valve plunger permitting water to enter through the valve.

ELECTRIC HEATER

All Nelson 300 Series Waterers are available with an optional thermostatically controlled heater. The heater is located in the water and heats the water directly to prevent freezing. The heater cycles, turning on when necessary and shutting off when not.

MODEL NUMBER LOCATION

Waterer model number is located on the waterer nameplate which is riveted to the housing. Model number is also present on shipping box, packing list and invoice.



LOCATION

When locating waterer, select a sheltered location if possible. Even a windbreak is helpful. Allow sufficient clearance for feed and manure handling machinery.

If installation is to be made in a corner or against a fence or partition, pay particular attention to positioning of the water bowl for easiest emptying and cleaning.

BASE OF WATERER

The waterer must be mounted on a level concrete base, free of sharp corners or edges. Surface of concrete mounting base must be flat or waterer housing will become distorted when bolted down and top cover will not latch. Concrete base needs to be a size and weight to prevent being moved or knocked over by animal. Waterer must be level when mounted on base or waterer will not operate properly.

Concrete Pipe Installation. Model 300-8 has an 8 inch high housings and is designed for installation on a poured concrete pad or in 12" ID straight side or bell end concrete pipe (see installation diagram). Concrete pipe usually can be obtained at your local concrete products manufacturer. Concrete pipe is usually available in four, six and eight foot lengths. Two concrete pipes, one on top of the other, may be necessary in order to extend down to the required depth necessary for freeze protection. Concrete pipe is heavy, weighing approximately 100-130 lbs per foot. It's a good idea to verify that concrete pipe is available in your area prior to purchasing your waterers. Consult your local phone book for a source (look under "Concrete Products").

Concrete Pad Installation. Both Models 300-8 and 300-24 are designed to mount on poured concrete bases (see installation diagrams). Poured concrete base may be in form of a pad or may be elevated, in which case a circular or square form is required.

MOUNTING WATERER TO Poured CONCRETE BASE

1. Review bolt circle dimensions as shown in drawing (see diagram "Bolt Circle Layout").
2. Mark concrete while still wet and insert 3/8" bent threaded rod or carriage bolts. Alternatively, mark concrete after it has cured and drill holes to accommodate 3/8" anchor bolts. Use stainless steel bolts. DO NOT use brass hold down bolts with aluminum housing waterers. Galvanic action will cause corrosion of housing.
3. Remove float pan and plastic lower bowl from housing (see diagram "Fastening Screws").
4. Place hold down lugs over the bolts and secure with nuts. Mounting surface must be flat or waterer housing will become distorted when bolted down. Shim if necessary.
5. Caulk with all-weather sealant at outside base of waterer where housing and concrete base contact (see installation diagrams). This will eliminate air gaps. Air gaps can lead to water line freeze-up and increased energy consumption by heater.

MOUNTING WATERER TO CONCRETE PIPE – MODEL 300-8

1. Anchor waterer to concrete pipe so that waterer cannot dislodged from pipe by animal (see diagram "Concrete Pipe Installation").

2. After waterer is anchored to concrete pipe, fill grove between housing and pipe with a sand-cement grout. This will further anchor waterer to pipe and eliminate air gaps. Air gaps can lead to water line freeze-up and increased energy consumption by heater.

WATER PRESSURE AND CONNECTION

WARNING! NON-SIPHONING STATUS

Nelson 300 Series Waterers do not meet the definition of being U.S. Government Approved Non-Siphoning. A backflow prevention device may be required. Consult a qualified plumber to be assured that you are complying with national and local plumbing codes.

Vertical Waterline.

The vertical portion of the waterline must be metal or rigid plastic to provide maximum freeze protection and to locate shut-off valve in proper location.

Connecting Waterer to Waterline

The recommended method for connecting the vertical waterline to the waterer offers more protection against freezing in that the flexline receives more heat from the lower bowl of the waterer. A 1/4 turn ball valve to shut-off water supply should be located on waterline. Ball valve should have one 1/2" female threaded end. The ball valve fits inside Nelson Waterline Insulation which has a 3" inside diameter. Other valve types likely will not fit inside the insulation increasing the risk of waterline freeze-up.

Connect 1/2" plastic fitting on flexline (supplied with waterer) to 1/4 turn ball valve on water supply line. Loosen the hose clamp on the other end of the flexline and screw 1/8" brass barb fitting into the elbow on the bottom of the lower bowl. With lower bowl positioned so that "moon" shaped notch on upper rim is adjacent to latch spring, tighten hose clamp. Then rotate lower bowl clockwise one half revolution (180 degrees) allowing flexline to properly coil before setting into housing (with "moon" shaped notch adjacent to latch spring).



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Waterer Valve

- A valve for 40 to 60 p.s.i. pressure systems is furnished as standard equipment unless otherwise specified. If your system has a higher or lower maximum pressure, notify Nelson Mfg. Co. and we will furnish the proper valve. (See Valve Table)
- Don't permit pipe cuttings, straw, or dirt to lodge in the valve during installation. Make certain that the rubber disk is flatly in place in the valve plunger.
- Don't make direct connections to water pumps of a piston type for surge of water with each stroke of the pump can cause extreme pressure which may force the valve plunger up, eventually causing the waterer to overflow.

WATERLINE FREEZE PROTECTION

A combination of geothermal heat and Nelson's Waterline Insulation Accessory 1004 protect the waterline from freezing (see installation diagrams). Digging a deep hole below the waterer allows ground heat to rise and circulate around the water line. The ground heat in addition to Nelson's Water Line Insulation and the heater in the waterer serve to protect the waterline and the water in the drinking bowl from freezing. To determine your area's maximum frost depth ask a local concrete contractor, well driller or your area's Agricultural Extension Service. Frost line depth is greater in areas where traffic occurs – driveways, foot paths, trails, etc... The deeper the hole the more freeze protection and heater efficiency.

Nelson Waterline Insulation Acc. # 1004

covers most of the vertical portion of the water line from the 90 degree elbow below ground up to the waterer. Use a 6" piece of insulation above ball valves. (see Connections & Piping on page 4). This allows the shut-off valve to be located properly while maintaining maximum freeze protection. Fire retardant urethane foam conforms to UL 94 HF-1.

Drain Pipe. Installation may require lining the hole below the waterer with drain pipe. Line the hole with PVC pipe or ADS corrugated, non-perforated pipe. Both are available locally. Do not extend drainage tile above concrete pad. (see installation diagrams).

Sealant. Apply an all-weather silicon sealant to seal outside of housing where housing and concrete meet.

ELECTRICAL INSTALLATION & MAINTENANCE

WARNING! ELECTRICAL INSTALLATION
Use a licensed electrician to install and maintain the Waterer, so that you can be assured that you have complied with all national and local electrical codes and that you have not created a risk of electrocution or fire. Improper installation or maintenance may result in serious injury or death for personnel or animals or damage to structures.

A LICENSED ELECTRICIAN WILL DETERMINE:

- A)** Type and size of service wire,
- B)** grounding procedure, **C)** Procedure for making moistureproof electrical connection.

Ground Wire: Ground wire should be connected to the green ground wire of the heater as well as the metal frame of waterer with an approved connector. Ground may be achieved by connecting to green ground wire of heater, the service ground and a third bare or green wire running from this connection to one of the hold down lugs on the waterer housing. (Note: wire connector would have three wires – heater green ground, service ground and wire to hold down lug).

Heating rating @ 120 volts AC.

WATERER	HEATER#	WATTS	AMPS
MODEL 300	280-2W	200	1.7

Dedicated Circuits. Waterers need to be on dedicated circuits. TURN POWER OFF after the Winter heating season when heaters are no longer needed (temperatures are consistently above freezing) or when performing maintenance on units.

REPLACING THE HEATING ELEMENT

WARNING! TURN OFF ELECTRICITY WHEN SERVICING WATERER
Always turn off power to waterers when using a tool to service or maintain waterer to eliminate risk of electrocution. Waterers should be on dedicated circuits.

Make certain when replacing heater that the element does not point upwards, interfering with action of float pan. The pan must rest entirely on valve plunger. If the pan does rest on heating element, loosen the lock nut and turn element until it is in a more horizontal position, then tighten lock nut. **DO NOT OVERTIGHTEN;** tighten finger tight then 1/8th turn with a wrench.

CLEANING

Push in on latch spring to release upper bowl and "flip" upper bowl. If sediment tends to stick in upper bowl, loosen with stick or paddle before you "flip" it. Lift out and empty the float pan. Replace the float pan by submerging in water. When necessary, clean lower bowl by lifting from housing and emptying. Rotate lower bowl CLOCKWISE one half revolution (180 degrees) to properly coil the flexline. Position lower bowl so that "moon" shaped notch on upper rim is adjacent to latch spring. Make certain flexline is in proper position when lower bowl is replaced. Close upper bowl, making certain latch spring is engaged.

Be careful when emptying the float pan. Knocking or dropping it on the ground or on the side of waterer may force it out of round. When the float pan is placed in the waterer, the float pan should spin freely. If it should bind when being rotated, it can be pressed round by hand. Don't drop the upper bowl when the pan is floating in high water as the float pan may become pinched between the upper and lower bowl, thus preventing its sinking. Instead, scoop water into the float pan to sink and the close the upper bowl.

MODEL 300 VALVE INFORMATION

A black valve for 40-60 psi is furnished unless otherwise specified. For identification of Model 300 valve sizes, use the following information:

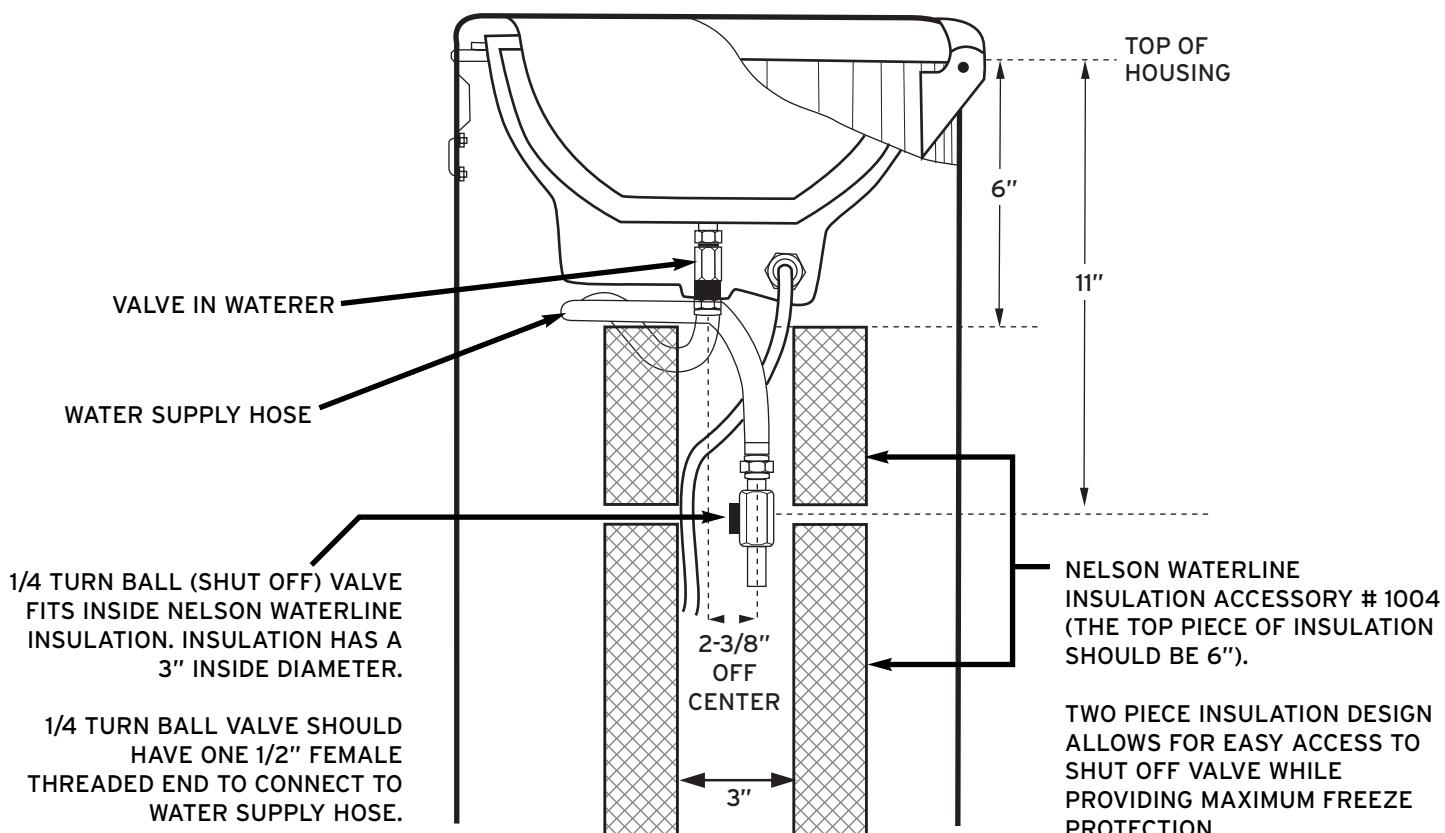
Part No	Max Pressure	Color
360-L	5 to 20 PSI	Blue
360-S	20 to 40 PSI	White
360-B	40 to 60 PSI (Std.)	Black
360-G	60 to 80 PSI	Green
360-R	70 to 100 PSI	Red

Before ordering special valves, make certain the lower bowl has not forced the flexline to bend against the foundation at a radius so short as to partially stop water flow.

WARRANTY

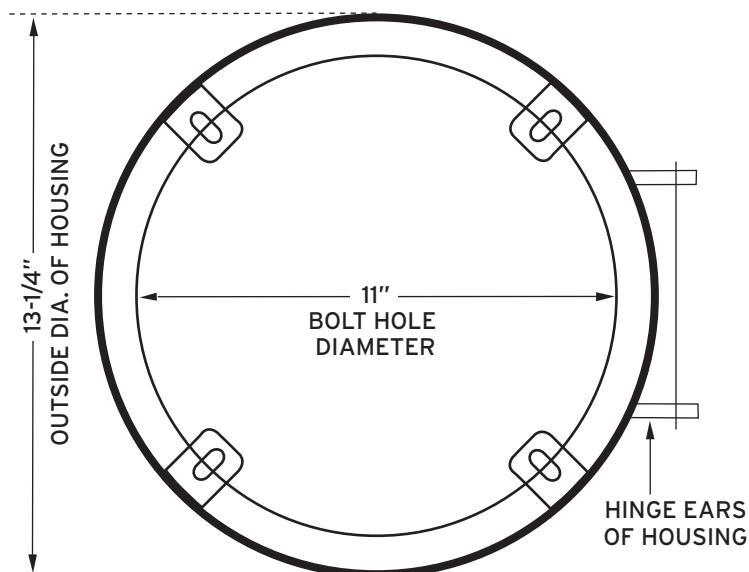
Nelson Manufacturing Company will repair or, at its option, replace without charge, any parts found defective upon examination at the factory if returned within the guarantee period, transportation charges prepaid. Replacement shipment will be made transportation charges prepaid. Nelson Waterers are guaranteed against defects in workmanship and/or materials for one year. Nelson heaters and thermostats are guaranteed against defects in workmanship and/or materials for three years.

Connections And Piping



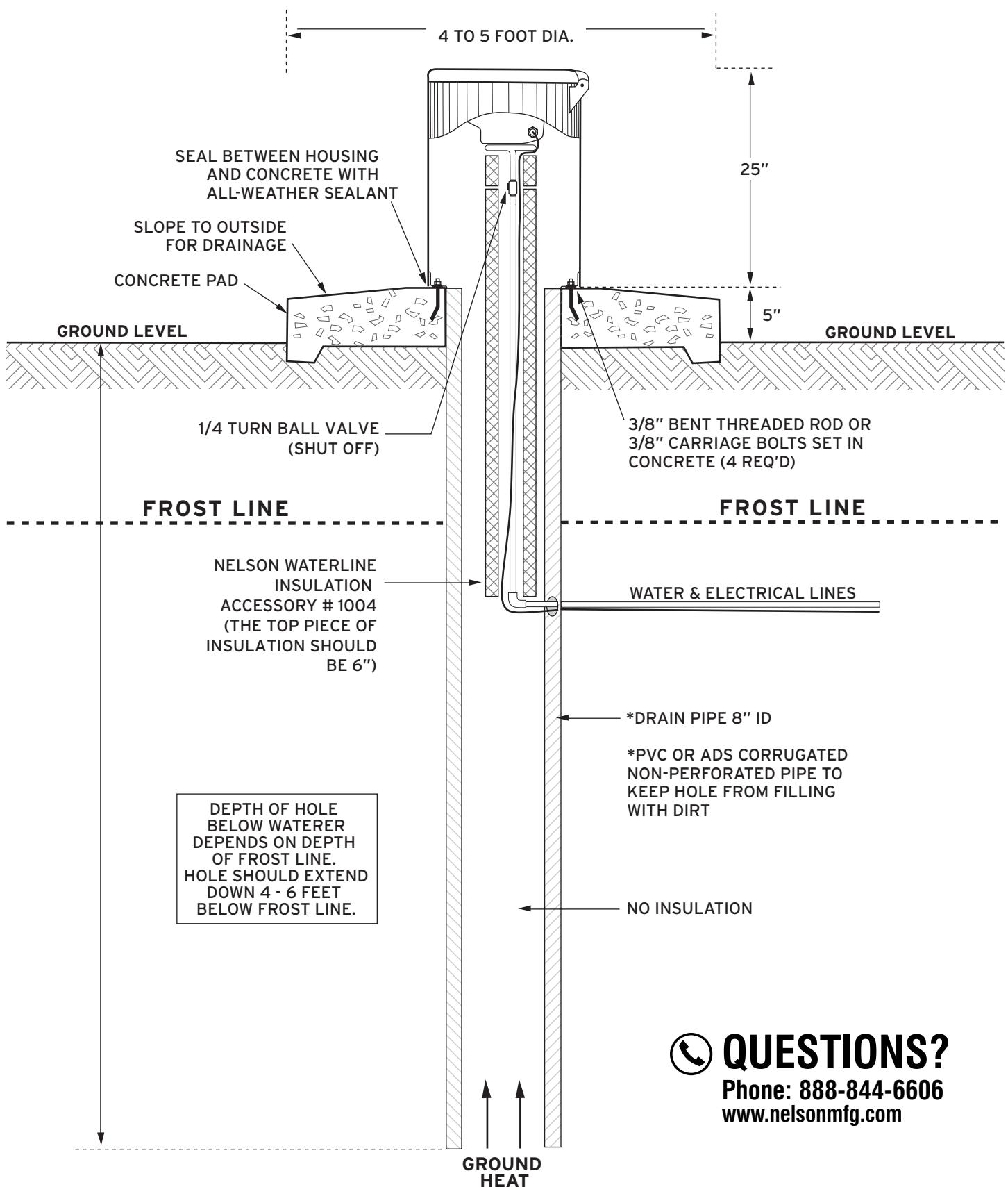
Bolt Circle Layout

FOR CORRECT LOCATION OF WATERER HOLD-DOWN BOLTS IN WET CONCRETE



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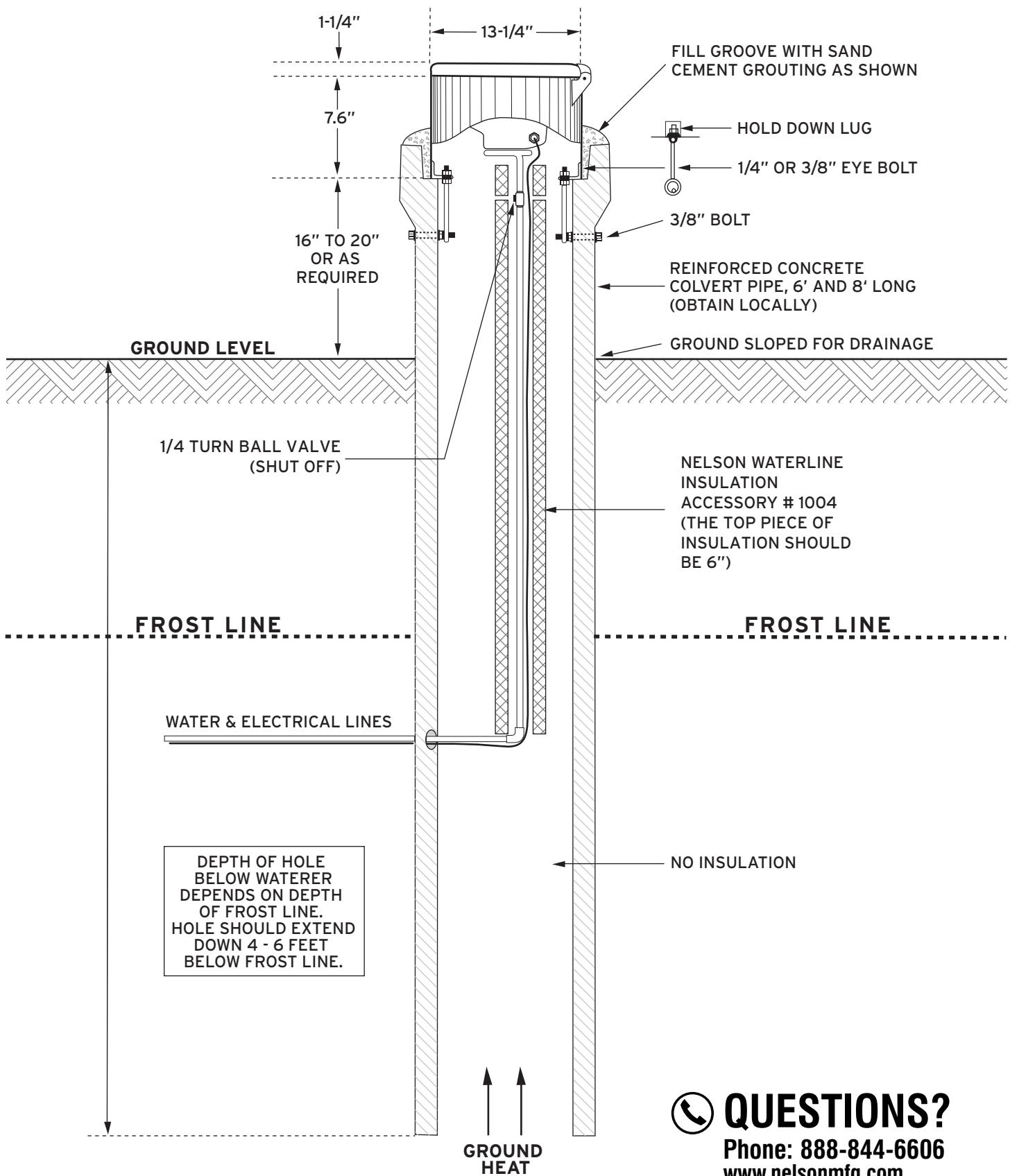
Models 300-24 Mounted on Concrete Pad With Heater



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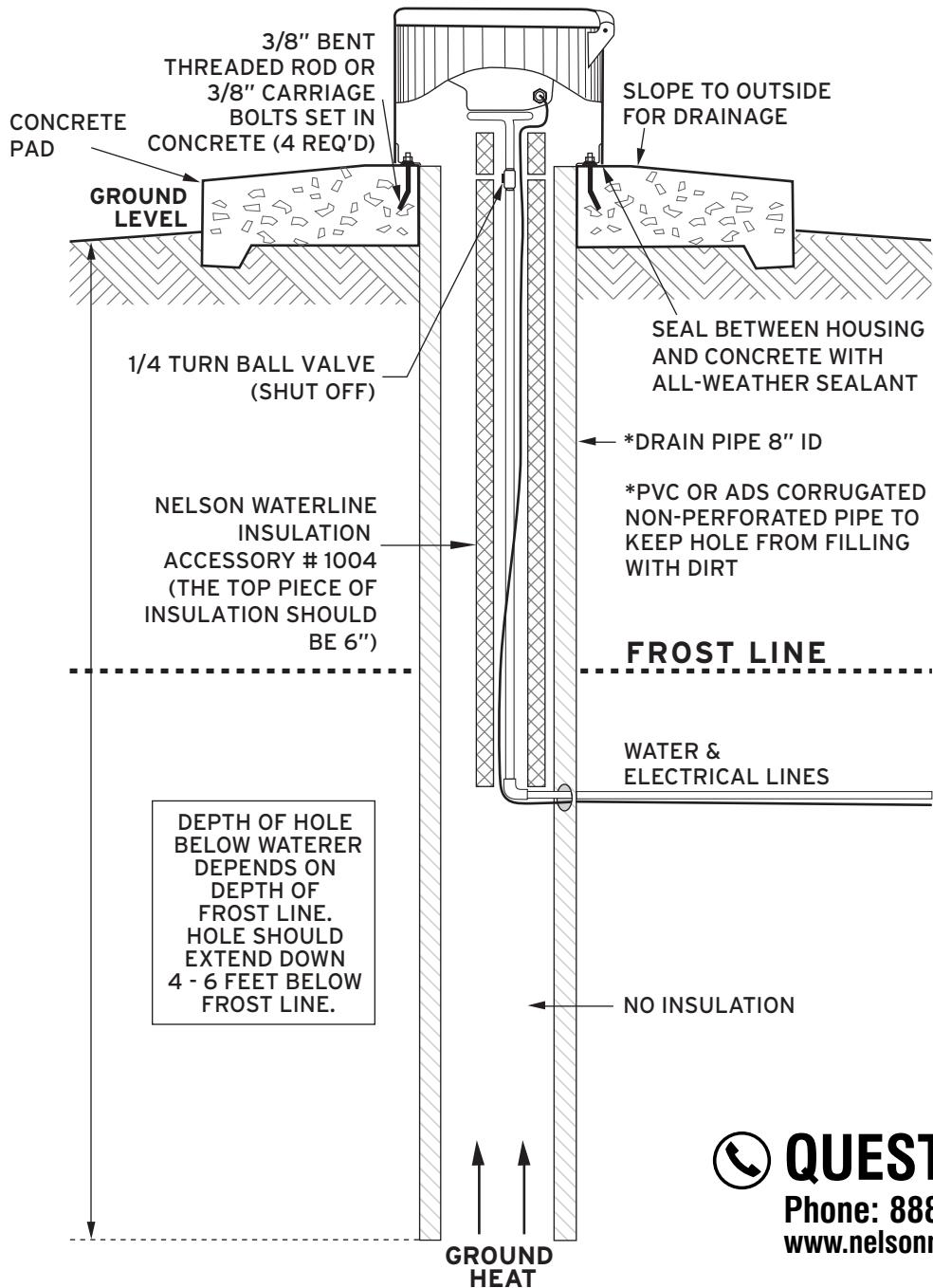
Models 300-8 Mounted in Concrete Pipe



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Models 300-8 Installation for Smaller Animals

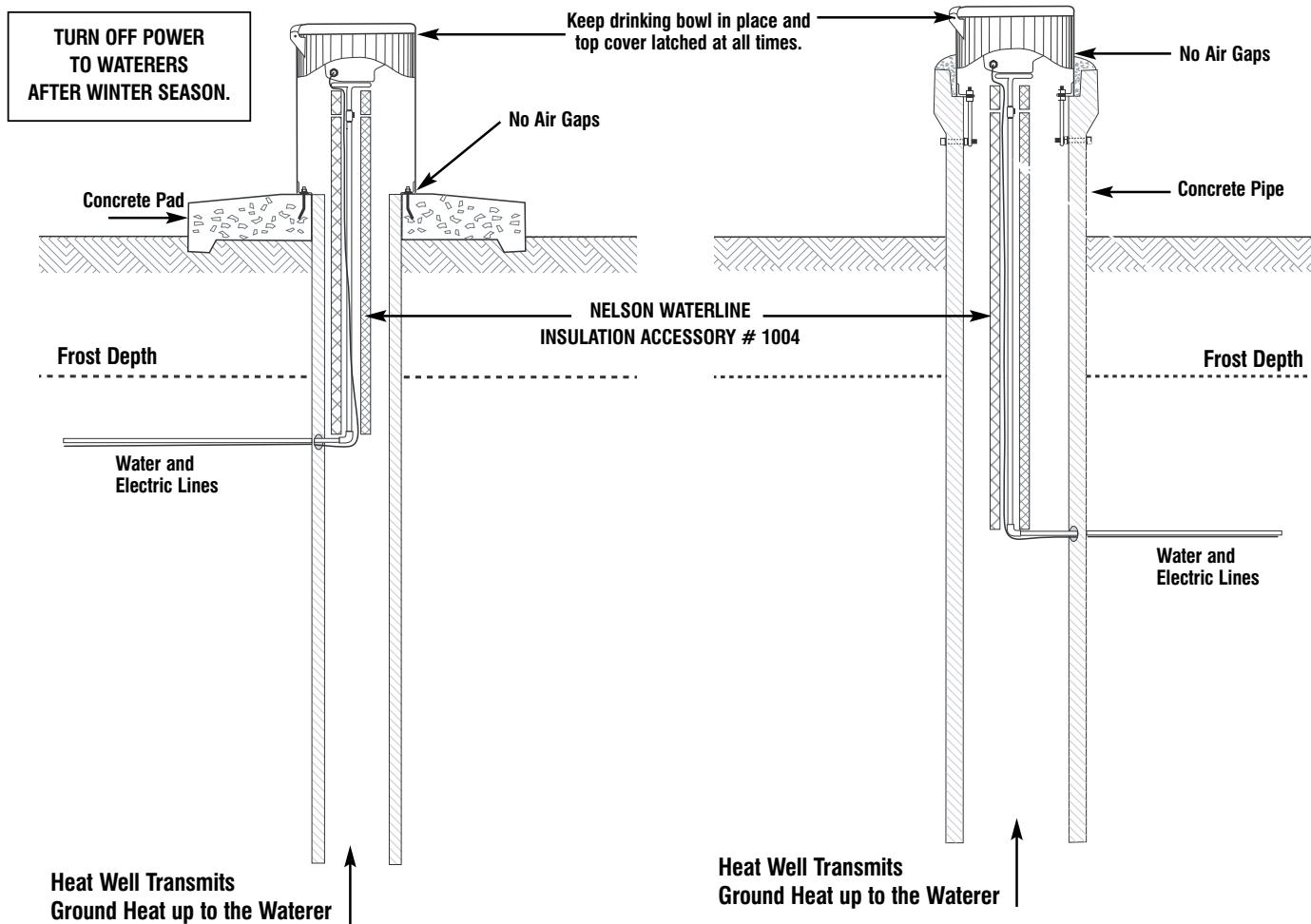


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Warnings and Safety: Nelson 300 Series Waterers

NELSON



WARNING! ELECTRICAL INSTALLATION & MAINTENANCE

Use a licensed electrician to install and maintain the Waterer, so that you can be assured that you have complied with all national and local electrical codes and that you have not created a risk of electrocution or fire. Improper installation or maintenance may result in serious injury or death for personnel or animals or damage to structures.

WARNING! TURN OFF ELECTRICITY AFTER WINTER SEASON

Always turn off electricity to waterers when heaters are no longer necessary (temperatures are consistently above freezing) to eliminate any risk of an accident resulting in electrocution or fire. Waterers should be on dedicated circuits.

WARNING! NON-SIPHONING STATUS

Nelson 300 Series Waterers do not meet the definition of being U.S. Government Approved Non-Siphoning. A backflow prevention device may be required. Consult a qualified plumber to be assured that you are complying with national and local plumbing codes.

WARNING! KEEP TOP COVER LATCHED

Top cover should be latched to housing at all times unless personnel are at waterer location performing maintenance on waterer such as cleaning, inspecting or replacing parts. An unlatched top cover may give animals access to power supply, creating a risk of electrocution or fire.

WARNING! TURN OFF ELECTRICITY WHEN SERVICING WATERER

Always turn off power to waterers when using a tool to service or maintain waterer to eliminate risk of electrocution. Waterers should be on dedicated circuits.

WARNING! INSPECT WATERERS DAILY

Inspect and clean waterers daily. Cleaning the drinking bowl daily will allow you to verify waterers are automatically refilling and heaters are working. If a waterer is not refilling as a result of a power outage and resulting freeze-up or a component failure, animals will not have water. This could lead to dehydration, illness or death.

WARNING! DO NOT EXPOSE ANIMALS TO ELECTRICAL WIRES

DO NOT expose animals to electrical wires. All electrical wires and insulation should be covered with protective PVC pipe or metal conduit pipe. This will help prevent animals from chewing through electrical wires and creating a risk of fire or electrocution. Consult a licensed electrician to assure you are complying with all local and national codes.



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