

# The **JUG**<sup>TM</sup>

Livestock Waterer



Model 101DA



Model 404DA



Model 202DA

- Clean, Clean, Clean
- Animals Adapt Easily
- Low/No Electric Use
- Frost-Free Water
- Dairy Approved

**Edstrom** INDUSTRIES, INC.

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# The JUG™

## Livestock Waterer

### Features

- Open bowl design
- DrawTube for natural drinking action
- Drain plug for easy cleaning
- Meets requirements for dairy approval
- High capacity float valve
- Sledge hammer tough, rotationally molded plastic construction
- Inspection cover for easy access to valve
- External Adjustment Screw for water level adjustment
- One, two, and four bowl models available
- Energy-Free models for warmer climates
- Energy-Efficient models for cold, cold winters

### Benefits

- Clean, clean, clean
- Low energy use
- No balls, lids, flaps, or discs for animals to move
- Animals drink naturally and adapt quickly
- Feed trap design keeps food debris out of the tank
- Stays open even through the coldest winters
- Many options and accessories to suit your needs
- Perfect for the littlest lamb or the biggest bull

- No cleaning out slime from water reservoir
- No training animals to use it

# How It Works

- No breaking ice from drinking hole on cold morning
- No paying high electric bills

## How animals drink from the JUG

It all hinges on the “DrawTube” - a word we coined to describe a unique design for supplying the animal with water. It is much like a giant straw so the animal can use its normal method of drinking. The animal places its muzzle over the opening in the drinking bowl and sucks up the water just as it would drink from a natural water hole.

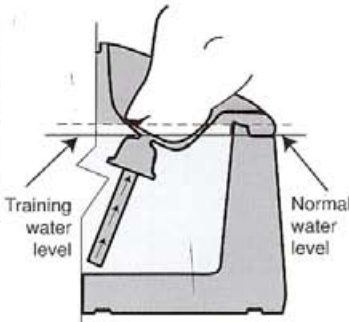


Fig. 1



Always clean, fresh water available

*\*The JUG was used to water light heifer calves. These calves are considered to be some of the most timid animals in a herd. No problems were apparent in adapting them to the JUG. Carrington Study*

## Designed for clean, clean water

JUG water is clean. No more smelly water from heavy bacterial growth. The DrawTube is attached to the drinking bowl with a feed trap (see Fig. 2) which keeps feed debris that falls off the animal's mouth from dropping into the reservoir. Besides sucking up water, the animal draws up any accumulated debris in the trap and bowl areas, providing further assurance of cleanliness. Edstrom Industries can document that you will not have the usual slime problem to deal with. And, of course, no algae will grow in the JUG since it is a light-tight waterer. The bowl is sealed with the Weather Seal (see Fig. 2).

Water is a nutrient and absolutely essential for maximum productivity. You know what the vets say: If the water is palatable the animal will drink the quantities it needs for maximum feed efficiency and rate of gain.

Quality=Quantity=Productivity

*\*The JUG was the only waterer tested that did not need a periodic cleaning of the reservoir. Carrington Study*



Provides water for 120 - 150 head of sheep

## External drain plug



The new external expansion drain plug allows easy draining of the water from the

JUG tank. The JUG's design keeps the water free from feed or hay, but most water has iron bacteria which will leave a residue in the tank over time. It is, therefore, wise to drain the tank periodically.

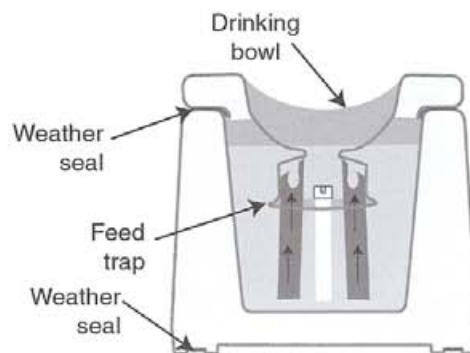


Fig. 2

# Easy to adapt animals to the JUG



Even timid calves drink easily from the JUG

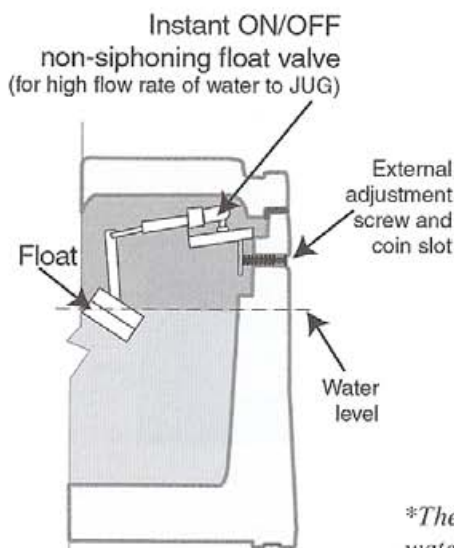
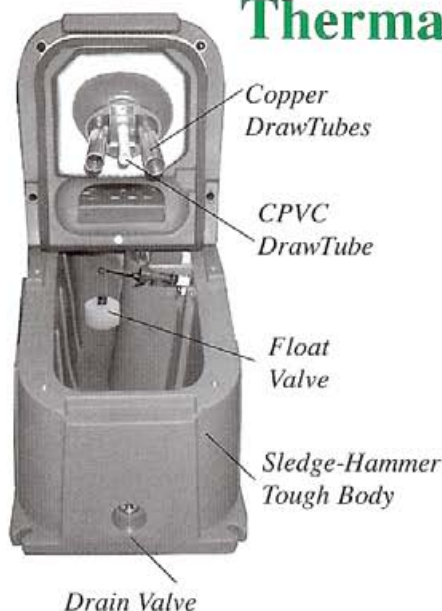


Fig. 3

With the JUG, animals can see and smell clean water. They do not have to learn to lift flaps or push balls and floats out of the way to get a drink, but they do have to know where the water is located. To this end, the JUG has an external adjustment screw (simply turn the screw with a coin) - there is no lid removal - (see Fig. 3) which allows you to raise the water level in the drinking bowl. When the animals know the JUG is their drinking station, return the water to its lower operating level to minimize the amount of water exposed to the weather. An internal, pilot-operated float valve automatically keeps the water at the determined level.

*\*The water level adjustment screw on the outside of the waterer is very convenient for raising/lowering the water level. Carrington Study*

## Thermal energy, not electrical energy



The DrawTube is really three tubes, two copper and one CPVC. As the water gets cold in the drinking bowl, it becomes heavier and sinks down the CPVC tube forcing the warm tank water up the copper tubes into the drinking bowl. This keeps the water in the bowl from freezing by slowly circulating it and replenishing it with warm water (see Fig. 4).

In addition, the copper tubes are designed with a large surface area in the trap. Since copper is an excellent conductor of heat, heat is transferred from tank water to the trap area through the copper tube walls (see Fig. 4). One copper tube conducts sufficient heat to keep water from freezing in the bowl, but we have two for safety.

Of course, you need enough animals drinking to keep water in the tank warm enough to provide heat energy. See page 11 for the minimum number of animals for an Energy-free JUG. Otherwise, a small 65-watt heater may be added to make the JUG energy-efficient. In either case it is primarily thermal energy, not electrical energy keeping the water fresh and at a constant temperature, summer and winter. Good from North Dakota to Florida.

*\*Energy use for the JUG 202 was less than 1 kwh a day; 100 kwh for the entire winter of 134 days. The energy cost for the JUG 404 was \$8.00 for the entire season. Carrington Study*

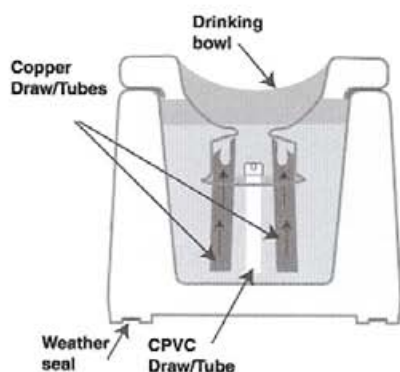


Fig. 4

The JUG is super-insulated with urethane foam to conserve heat loss, but the middle of the bowl area is left free of insulation so the internal heat will melt away any ice that could form on the exterior from sloppy drinking. It's like a Thermos Jug.

*\*Rated tops for reliability in extreme cold and wind chills. Carrington Study*

# Dairy Approved

designed to prevent back-siphoning into your farm water supply

**No back-siphoning** The JUG meets all requirements for dairy approval. If your water supply has pressure up to 80 psi and the JUG float valve should become stuck open\* allowing full flow of water into the JUG tank, the water will overflow at the bowls but will maintain a one inch air gap minimum between the water level in the tank and the outlet of the float valve (see Fig. 5). This air gap prevents back-siphoning into your farm water supply. We believe this requirement cannot be met by most of our competitors. This feature is not only important for dairy approval, but also is important for the protection of your family.

\*NOTE: This valve is very reliable and the chances of this occurring are very small.

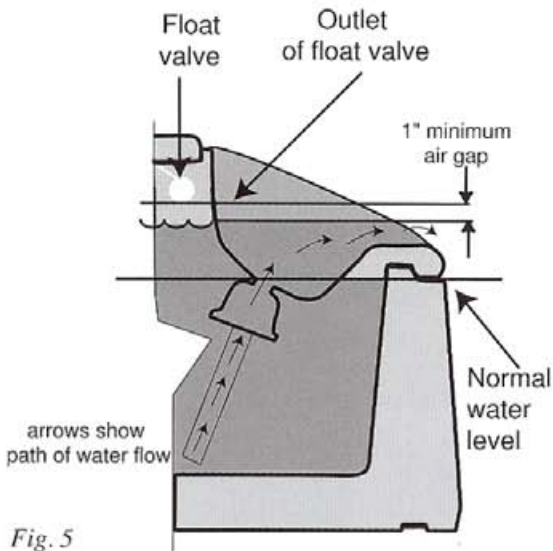


Fig. 5

## Inspection Cover

The JUG has an inspection cover that can be easily removed for inspection and service to the float valve. Milk inspectors requested that we provide this so they can easily check to see if the JUG is meeting requirements.

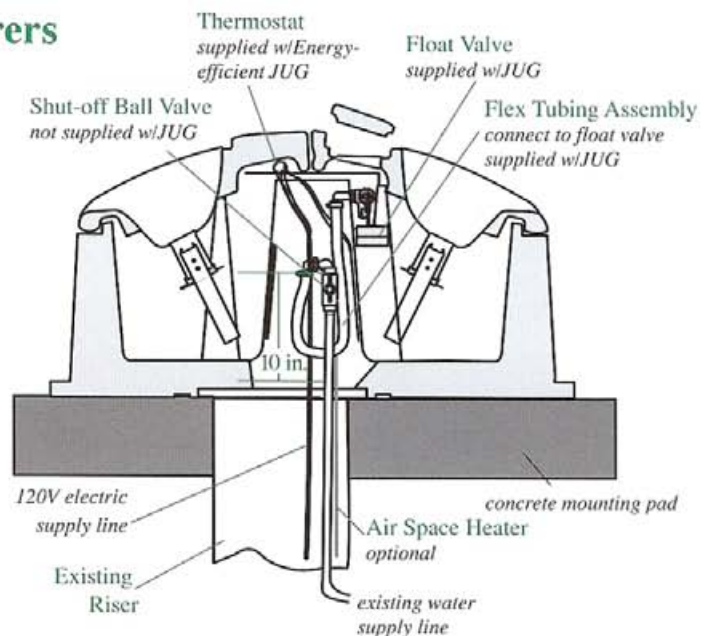


## Installation Diagram For Replacement of Existing Waterers

The Energy-efficient JUG is the choice to replace a worn-out, low usage (less than 10 cattle/50 sheep) or energy-glut waterer. It requires no excavation; just bolt it down to your existing mounting pad. It has a low wattage heating element and thermostat to provide "insurance" against ice forming in low usage situations. If your existing incoming water line is in an open uninsulated tile you should install an air space heater.

For this installation you will need to order

- Energy-efficient JUG
- Shut-off Ball Valve
- Air Space Heater (optional)



(See pages 11 and 12 for ordering information.)

# Energy-Free & Energy-Efficient Installations Using Earth Tubes

## Energy-Free

The energy-free JUG uses energy from ground water (45° to 55°F if the supply line is buried at least 18" to 24" below the frost line (see map page 15) and from a heat well to prevent freezing of water in the tank and bowl. The JUG is super-insulated and has very little heat loss. It's like a Thermos Jug.

When an animal drinks, the water in the JUG is replenished by the warm ground water. In addition, when using an insulated Earth Tube and uninsulated Earth Tube, a heat well is formed (see options 1 and 2, page 7) which supplies additional energy from the ground. The insulated Earth Tube extends below the frost line (see map page 15) which prevents heat loss to the frozen ground in winter. The uninsulated Earth Tube is the same length as the insulated Earth Tube and is installed as shown in the diagrams for options 1 and 2. The heat well works because heat from the warm ground flows through the uninsulated Earth Tube into the heat well and then is used as additional energy to keep water in the JUG from freezing.

In summary: Heat from the incoming warm water and heat from the ground that flows into the heat well is used to keep the JUG frost-free. **There must be the recommended minimum number of animals drinking (10 cattle per drinking bowl) to replenish the water in the JUG tank.**

## Energy-Efficient

The Energy-efficient JUG is the model of choice if there are fewer than the recommended minimum number of animals drinking, or if you live in an area where long cold winter storms can cause prolonged periods of non-drinking by the animals. The small, low-wattage heater provides "insurance".



*Insulated Earth Tube*

If you live in an area that has temperatures of -15°F or wind chills of -30°F for extended periods, we HIGHLY recommend the Energy-Efficient JUG for the best performance at the lowest maintenance.

# Installation Diagrams

## OPTION #1

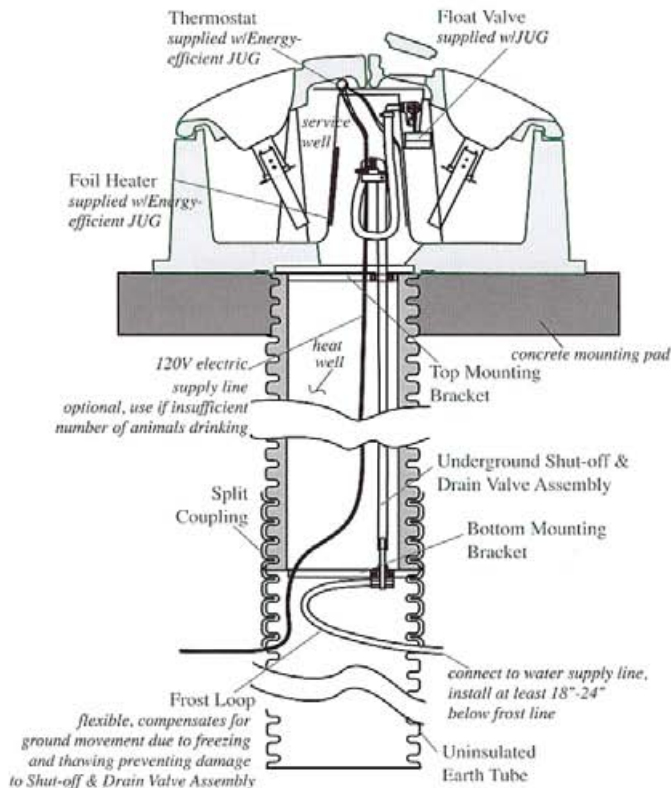
### Water Supplied by Underground Shut-off & Drain Valve Assembly

This shows the use of the water supply Underground Shut-off & Drain Valve Assembly. Advantage: If the JUG is installed in a location where animals will not be using it for long periods of time, the water can be shut-off and the water in the riser will be drained away. The JUG tank should also be drained and the incoming electric supply disconnected if it is an energy-efficient model.

For this installation you will need these items:

- Energy-free or Energy-efficient JUG
- Insulated Earth Tube
- Uninsulated Earth Tube
- Split Coupling
- Underground Shut-off & Drain Valve Assembly
- Earth Tube Top and Bottom Mounting Bracket Kit
- Frost Loop Kit
- Anchor Bolt Kit

See pages 11 and 12 for ordering information.



## OPTION #2

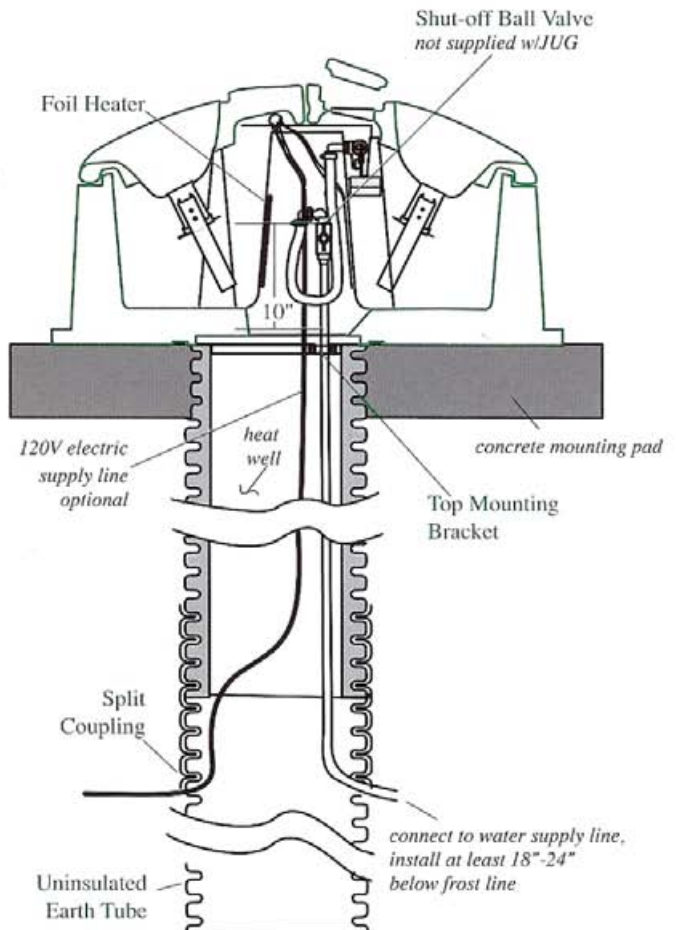
### Water Line Supplied by Customer

In this option the user furnishes the incoming water supply to the Ball Shut-off Valve.

For this option you will need these items:

- Energy-free or Energy-efficient JUG
- Insulated Earth Tube
- Uninsulated Earth Tube
- Split Coupling
- Earth Tube Top Mounting Bracket Kit
- Shut-off Ball Valve
- Anchor Bolt Kit

See pages 11 and 12 for ordering information.

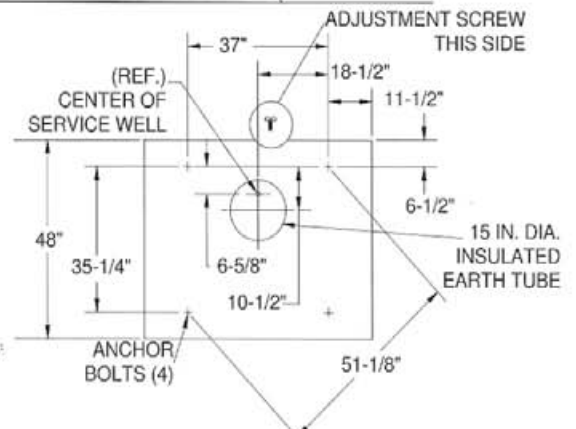
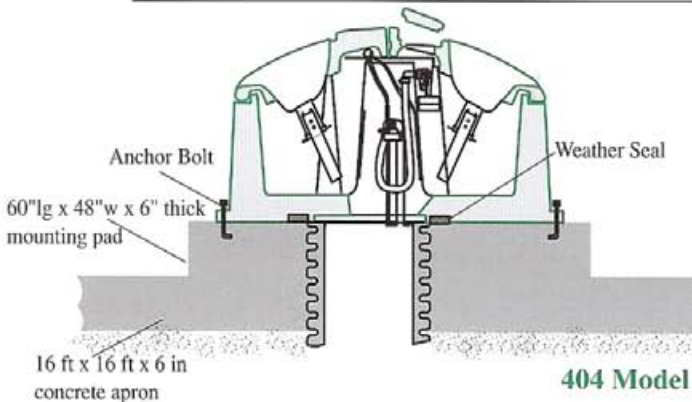
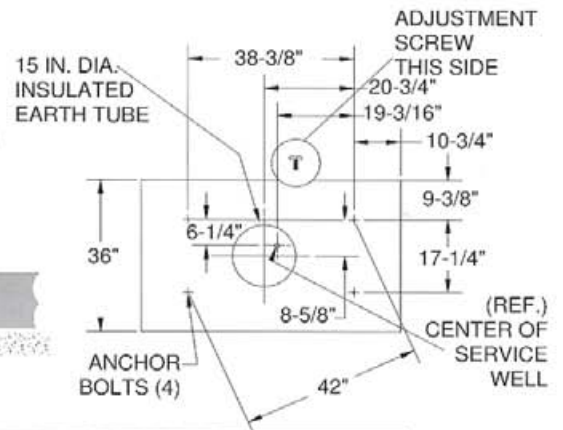
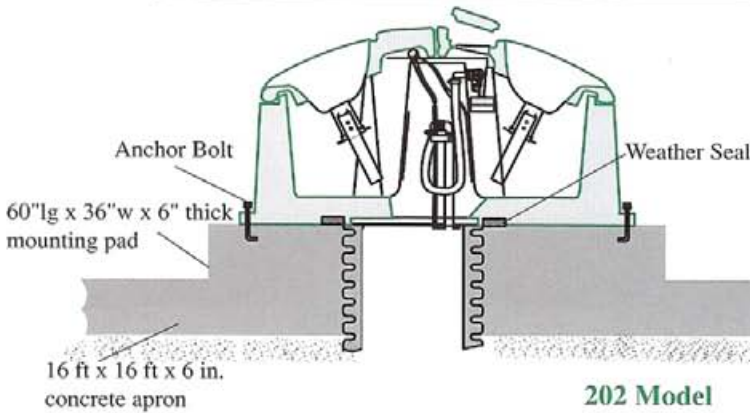
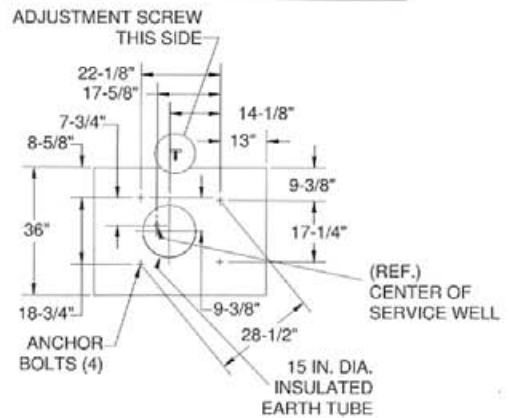
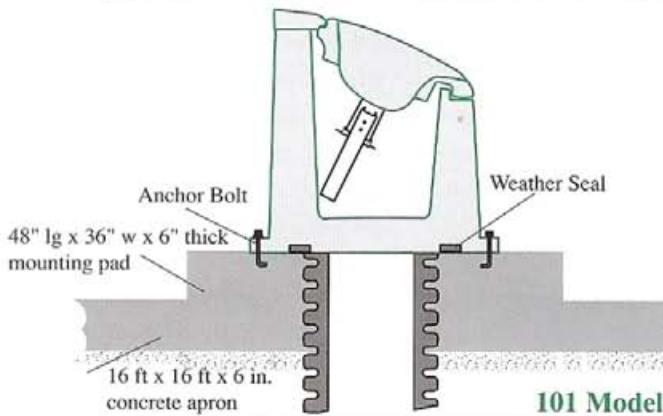
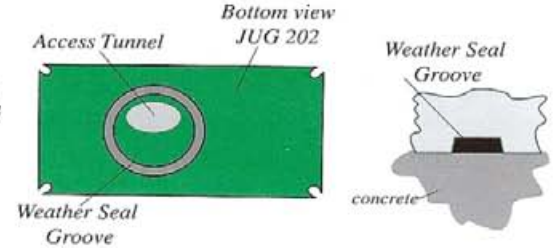
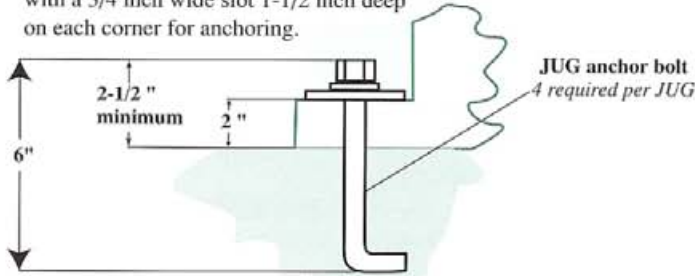


# JUG Mounting Pad Information

## All Installations

Joint between base and JUG must be sealed by putting the Weather Seal, supplied with the JUG, in the groove molded in the JUG base. Also, caulk between the JUG and the base to insure a tight seal against wind.

The JUG has a 2 inch thick foot with a 3/4 inch wide slot 1-1/2 inch deep on each corner for anchoring.





# Installation Accessories - Earth Tubes

## Insulated Earth Tube

15 inch OD, corrugated plastic tubing insulated inside with Urethane foam to a 10 1/4 inch ID. Used to insulate the Heat Well below the frost line, preventing the loss of energy into the frozen ground.

- Durable

Won't rust, resists rot, and holds up to chemically active soil conditions. Unaffected by ground movement due to freezing and thawing.

- Strong

Corrugated design provides rigidity without bulk when backfilled with earth. It will take the abuse.

### Insulated Earth Tube Lengths

3 ft. long (P/N 0810-9015-F03)

4 ft. long (P/N 0810-9015-F04)

### Insulation



## Uninsulated Earth Tube

15 inch OD, corrugated plastic tubing. Used to extend the Insulated Earth Tube into warm ground below the frost line and form the Heat Well.

- Durable

Won't rust, resists rot, and holds up to chemically active soil conditions. Unaffected by ground movement due to freezing and thawing.

- Strong

Corrugated design provides rigidity without bulk when backfilled with earth. It will take the abuse.

### Uninsulated Earth Tube Lengths

3 ft. long (P/N 0810-9015-U03)

4 ft. long (P/N 0810-9015-U04)



## Frost Loop Kit

(P/N 0810-1000)

This consists of 6 ft. x 1/2 in. ID polyethylene tube with a 1/16 in. wall. Two nylon 1/2 in. MPT x 1/2 in. barbed fittings, two stainless steel hose clamps. Use to connect the

Underground Shut-off & Drain Valve Assembly to the incoming water supply line. The Frost Loop is flexible and compensates for movement of the ground due to freezing and thawing, preventing damage to Underground Shut-off & Drain Valve Connections.

## Earth Tube Split Coupling

(P/N 0810-9015-C12)

Used for joining the 15 inch. OD Earth Tubes. It is a split plastic coupler that fits into the corrugation of the Earth Tubes.



## Insulated Earth Tube Top & Bottom Mounting Bracket Kit

(P/N 0810-1500-002)

Kit consists of top and bottom brackets, screws, clamps, lock washers and nuts, for mounting the Underground Shut-off & Drain Valve Assembly to the Insulated Earth Tube. All metal parts are stainless steel.

## Insulated Earth Tube Top Mounting Bracket Kit

(P/N 0810-1500-001)

Kit consists of top bracket, screws, clamps, lock washers and nuts, for mounting the Water Supply Pipe (furnished by customer) to the Insulated Earth Tube. All metal parts are stainless steel.

## Shut-off Ball Valve

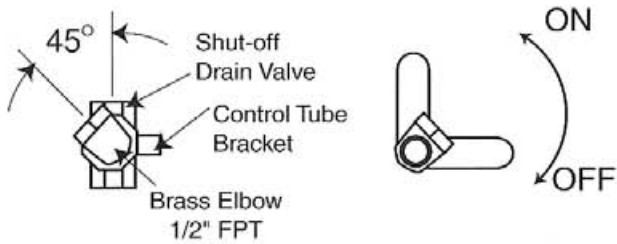
(P/N 2000-7100-001)

This is a rugged PVC Ball Valve with 1/2 inch FPT. Used with JUG when the Underground Shut-off & Drain Valve Assembly is not used.

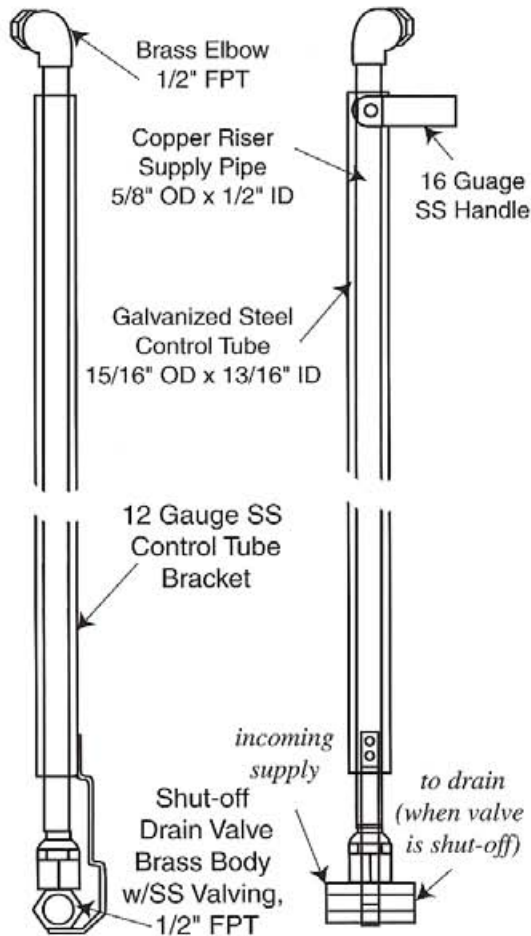


# Installation Accessories

## Underground Shut-off & Drain Valve Assembly



### BRASS ELBOW ORIENTATION



This is used when the JUG must be removed from service due to non-use by the animals. It provides a positive way to shut the water off and drain the existing water from the riser pipe.

We know that it will be buried 3 to 6 feet underground so we designed a mechanism that is not likely to leak, that will be easy to operate, and that will withstand the corrosive environment. It is constructed of materials that are rugged. (Please refer to Fig. 7 for details.)

#### • Easy-To-Operate

The valve is operated by an easy-access handle in the service-well of the JUG. To turn the water on, simply turn the handle counterclockwise to a positive stop. To shut off the water, turn clockwise to a positive stop. The incoming water is stopped and water in the riser pipe will drain away.

#### • Compact Assembly

The water is supplied through a copper riser tube inside a control tube. There is 3/16 inch clearance between the OD of the copper riser tube and the ID of the control tube. There should be no binding.

#### • Corrosive Resistant Material

The materials that are in water contact are copper, brass, and stainless steel. The bracket which attaches the Shut-off & Drain Valve to the control tube is 12 gauge stainless steel. The valve control mechanism will not rust because all materials in contact with the brass body of the valve are copper and stainless steel. We have experienced underground shut-off and drain valves that rust and then were impossible to operate. We have designed this assembly to prevent that kind of a malfunction.

#### • Rugged Construction

We have used all metal construction with heavy gauge material because the mechanism must be strong to be reliable several feet underground. We have designed this assembly to prevent breakage or sticking that would require a backhoe and pick and shovel to remedy.

#### • Reliable Valve Mechanism

The ball valve selected has a brass body with a stainless steel ball and teflon seals. It will be dependable and operate when you need it to operate.



*Underground Shut-off & Drain Valve Assembly*

Fig. 7  
Underground Shut-off & Drain Valve Assembly

P/N 0810-9400-003 fits 3 ft. lg. Insulated Earth Tube  
 P/N 0810-9400-004 fits 4 ft. lg. Insulated Earth Tube  
 P/N 0810-9400-006 fits 6 ft. lg. (2 coupled 3 ft. sections)  
 Earth Tube

## Specifications & Ordering Information

Specifications	101 DA	202 DA	404 DA
	L25-1/4"xW20-1/2"xH22-1/2"	L41-1/2"xW20-3/8"xH22-1/2"	L40"xW38"xH24"
Energy-free (EF) Energy-efficient (WH) 65-watt heater & thermostat	Model 101 EF DA Model 101 WH DA	Model 202 EF DA Model 202 WH DA	Model 404 EF DA Model 404 WH DA
Tank capacity	7 gallons	16 gallons	45 gallons
Animal capacity (drinking ht. approx. 10") dairy beef sheep	20 -25 head 40 - 45 head 50 - 60 head	50 - 60 head 80 - 100 head 120 - 150 head	100 - 150 head 160 - 250 head 240 - 300 head
Min. number of animals on EF	10 cattle / 50 sheep	20 cattle / 75 sheep	40 cattle / 100 sheep
Max. 24-hr electrical use	1.56 kwh	1.56 kwh	1.56 kwh
Weight	45 lbs.	72 lbs.	125 lbs.
Carrier	UPS	UPS	Motor Freight
Shipping	FOB Waterford	FOB Waterford	FOB Waterford



**Model 404DA**



**Model 101DA**



**Model 202DA**



## Norval and Jim Mosher Liscomb, Iowa

Owners of nine JUGs

“We used to fight waterers, summer and winter, for 35 years until the JUG. Now...no service to them at all!”

## Dean Griepentstroh, Dunbar, NE

“It is so durable I expect to use it for a lifetime. I especially like the external water level adjustment. The animals started drinking right away with no training. And it hasn’t needed cleaning even though it stands idle all summer.”

## Tom Jager, Eddyville, IA

“I’ve used the JUG for several winters now. Even with sub-zero weather we’ve had no freezing over and no electrical use to speak of. Also no cleaning and no training. I’ve used another brand of waterer in the past and prefer the JUG.”

## Don Jones, Spirit Farms Fond Du Lac, WI

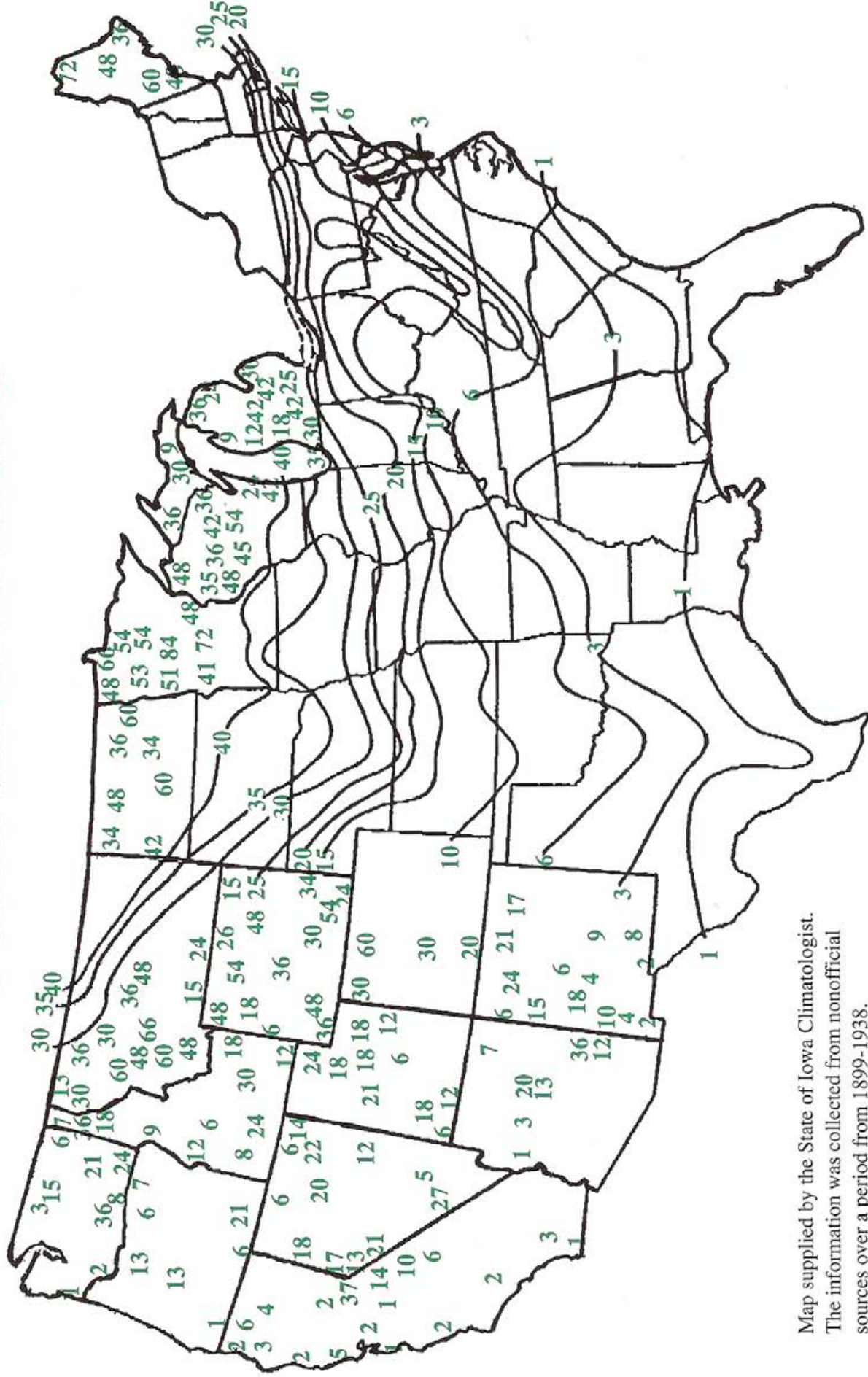


The winter of ‘91-‘92 has been hassle-free in providing water to the 325 purebred herd of *Spirit Farms*, thanks to the JUG.

Once installed and in use, we have observed that the stress of our cattle has been reduced in accessing water. The cattle form a line according to social order and wait turns to use the JUG. They readily use their mouth to naturally suck the water. Due to the JUG reservoir system, the water remains fresh and clean. The enclosed pictures were taken in January ‘92 on a minus 40 degree wind chill afternoon. We are so relieved at not having to worry about outdoor water in the winter that we are motivated to write and say thank you.”



# Average Depth of Frost Penetration in Inches



Map supplied by the State of Iowa Climatologist.  
The information was collected from nonofficial sources over a period from 1899-1938.



*Sheep*



*Dairy*



*Elk*



*Emu*



*Horses*



*Bison*



*Feed lots*



*Low, low operating cost*

**Call or e-mail us for  
information about the Dairy Approved JUG!**



*Fresh water even  
on the coldest days*

**Western Farm Sales**



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Oakes, ND 58474  
1-800-635-3293