SECTION 23
CAGE WATERING INFORMATION

IN THIS CATALOG SECTION

VAL WATERING SYSTEMS - CAGE WATERING
Installation Guide, Parts List, Operation Guide
and Maintenance Instructions

INSTALLATION INSTRUCTIONS & PARTS IDENTIFICATION

Toll-free: 1-800-99VALCO
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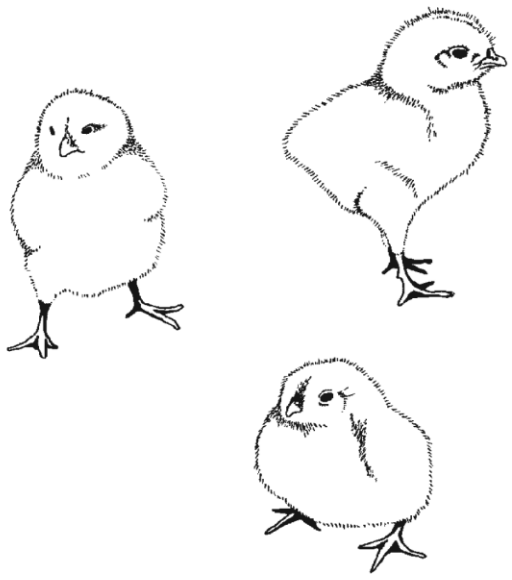
PLANNING

Checklist

Tools you will need to install your Val system:

- Hammer
- Screwdriver
- Crimping Tool
- Cable Cutters (VC300)
- Saw
- PVC Glue (VG125)
- Teflon Tape
- Pliers
- Measuring Tape
- PVC Pipe Cutter (VC100)



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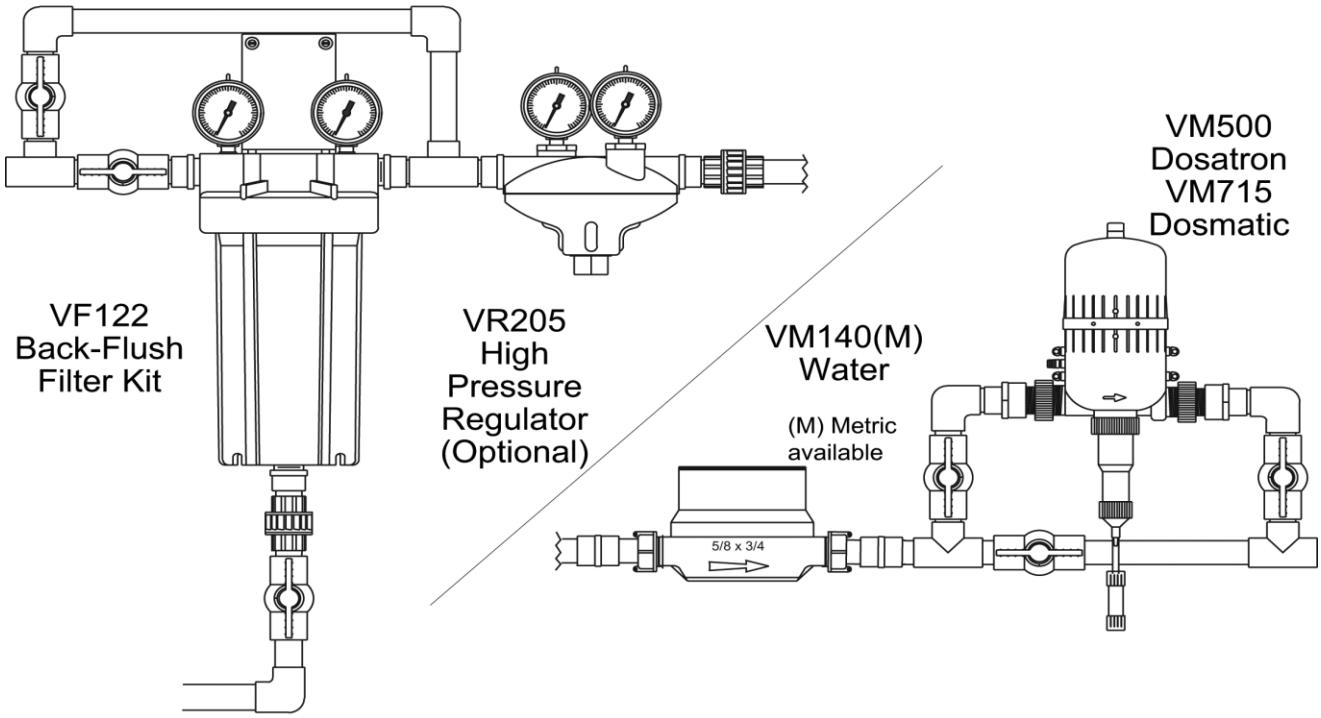
Review all instructions before starting installation procedures and gather all tools required first.

See page 21 for a drawing of the lead-in kit. (VL100 + VL200).

See next page for an alternate setup for filters.

House Header Kit



Backflush Filter Installation

1.Attach mounting bracket (VF126) to cap (VF129) with lag screws (VF127).

2.Apply 4 or 5 turns of thread sealing tape to male pipe threads of each fitting.

3.Assemble all fittings as tight as possible by hand to ensure proper fit. Tighten with wrench no more than one turn to snug fit. **DO NOT OVERTIGHTEN.**

4.Cut pipe to length and glue ends into place.

5.Assemble all parts. Check for water leaks. Rewrap any threads that are leaking with more turns of Teflon tape.

6.**CAUTION:** If water pipes are used for grounding electrical systems, be sure to install a jumper wire across filter.

Regulator Installation

1.Wrap 4 or 5 turns of thread seal tape around each 3/4" male adapter and screw 1 each into INLET and OUTLET of regulator (VR205). **CAUTION:** Do not overtighten as you could crack regulator top housing.

2.When using in regulator kits VR205-1 and VR205 wrap 4 or 5 turns on thread seal tape around 1/4" NPT plugs (VRP59) and tighten with wrench.

3.Wrap 4 or 5 turns of thread seal tape around gauge(s) and hand tighten into top of regulator.

4.Install in line after the filter system and before any medicator or water treatment system.

5.To maintain even pressure in all low pressure lines in poultry house, always set high pressure regulator lower or at least as low as lowest pump pressure setting. Do not set regulator below 25 PSI.

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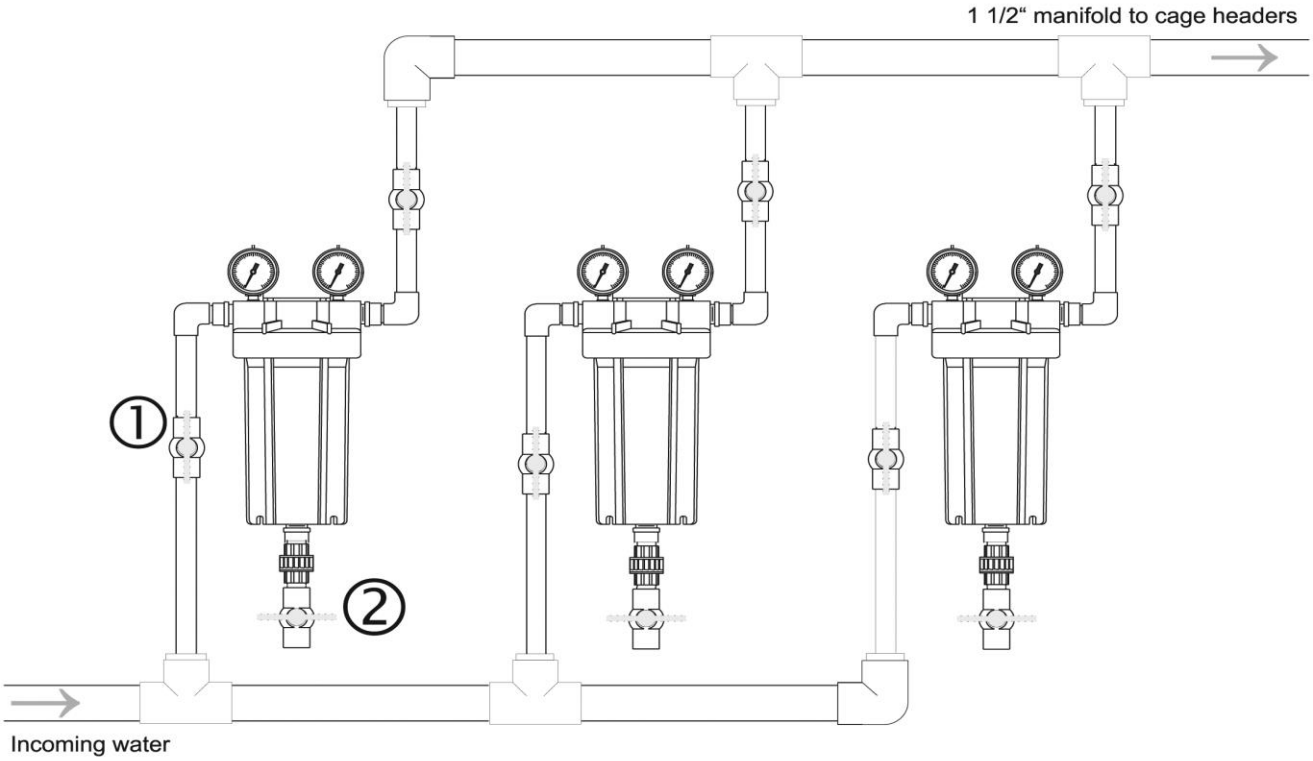
Alternate Filter Setup

This setup will allow you to flush any filter and still provide water to all cage rows. You will also be flushing with filtered water.

Meters and medicators can be installed for each row.



To flush, close ballvalve ① and open ballvalve ②.

(For maximum effectiveness, flush one filter at a time.)

One filter (VF122) will supply up to 50,000 birds.

One low pressure filter (VF122L) will supply up to 30,000 birds.

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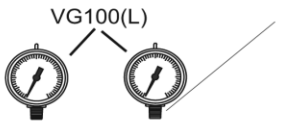
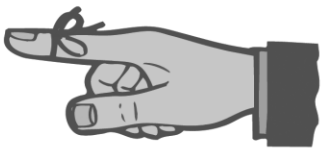
Back Flush Filter

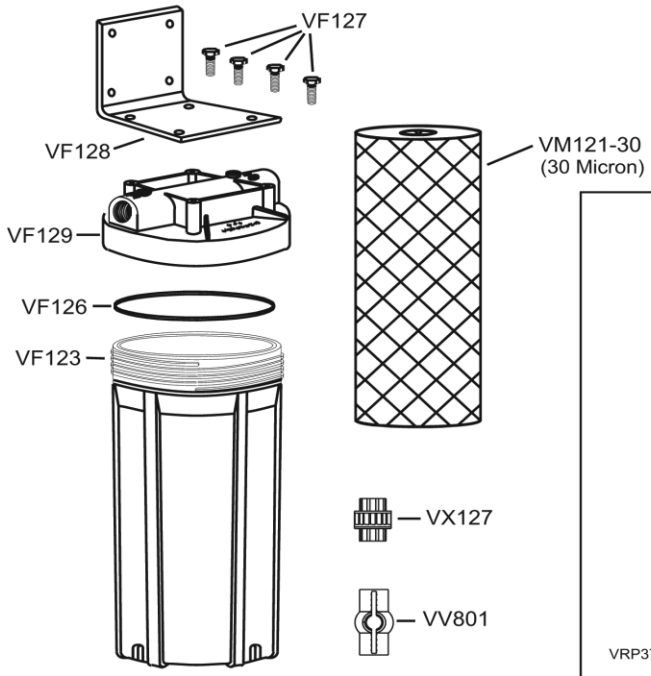
VF122(L)



Use wrench to lightly tighten gauge [DO NOT OVERTIGHTEN].

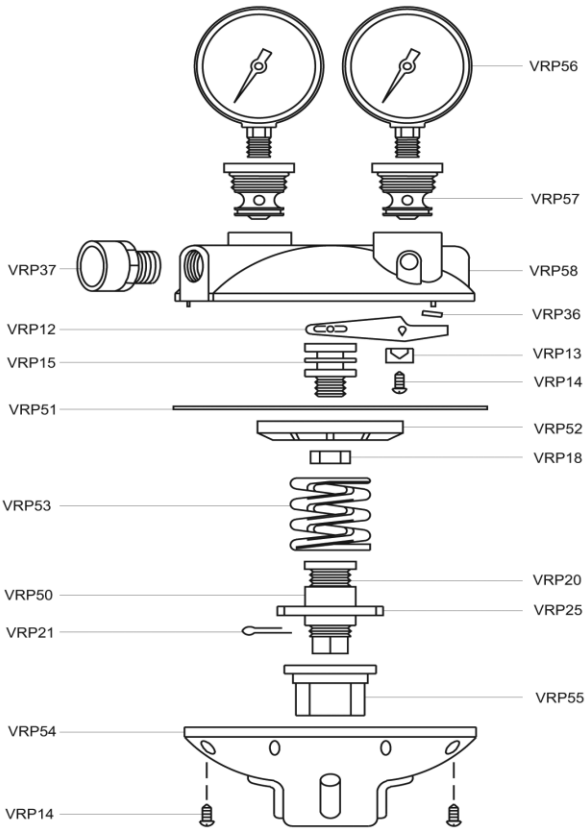


Don't forget to flush your filter whenever you read 10 PSI difference between the two gauges or at regular intervals *(For low pressure systems [below 10 PSI] use a 50 micron filter and flush when there is a 1 PSI difference).*



High Pressure Regulator

VR205



The high pressure regulator should be used when incoming water fluctuates more than 20 PSI (1.7 Bar). Set the outlet pressure at least as low as the lowest pump pressure setting, which will maintain an even outlet pressure. Do not set regulator pressure below 25 PSI.

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Medicator

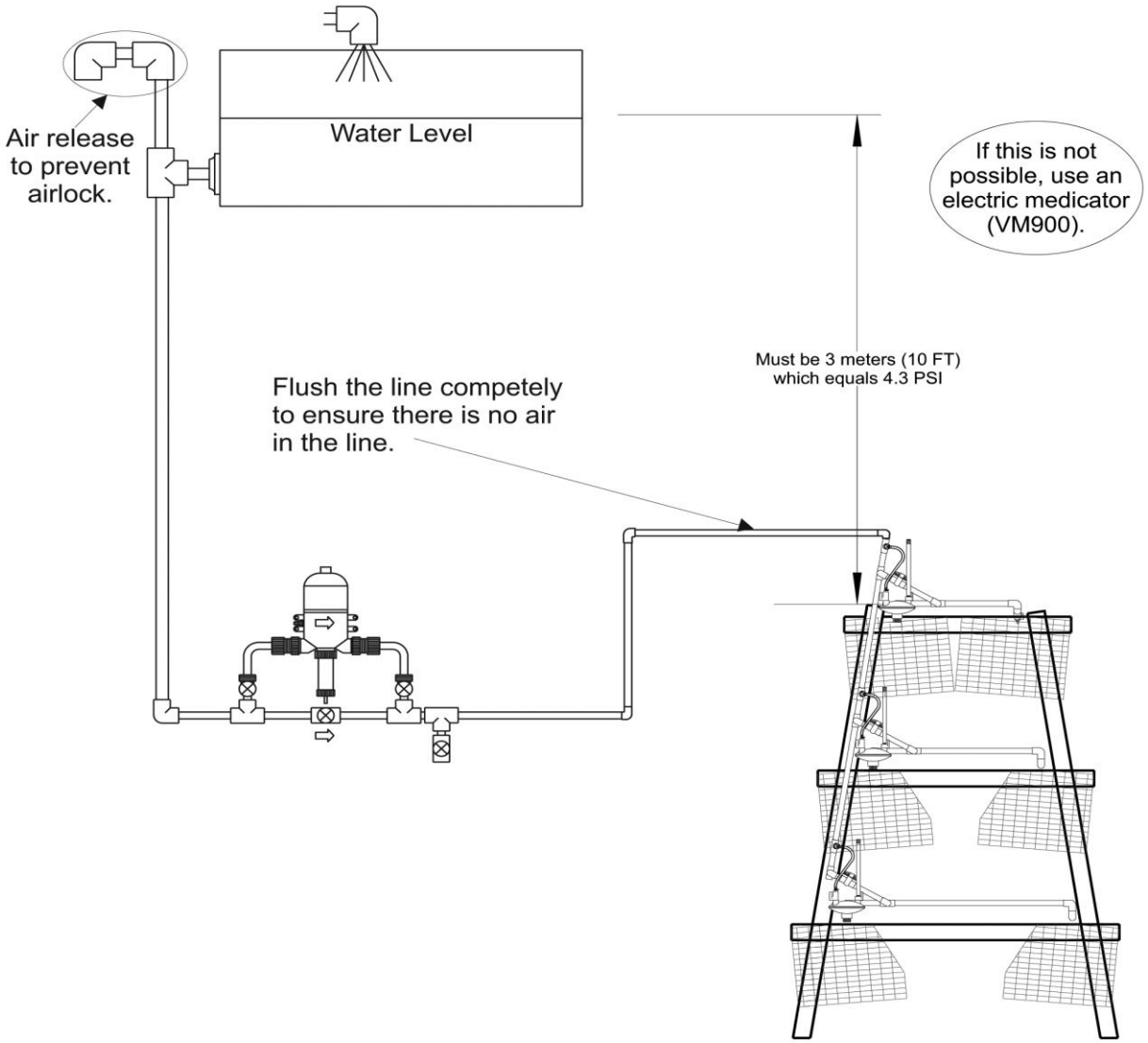
Tips

- Hard water will crystallize when coming into contact with chlorine and may cause excessive wear on mechanical parts.

Please refer to your medicator manual for detailed instructions on maintenance, operation and troubleshooting.
See page 33 for medicating procedures.
See page 26 for line cleaning procedures.

Tank or Gravity Feed

The minimum height requirement is from the water level in the tank down to the middle of the nipple line. **NOTE:** The water line must be full of water for the proper pressure to be created. Any air between the tank and the nipple line will decrease the effectiveness of the medicator.



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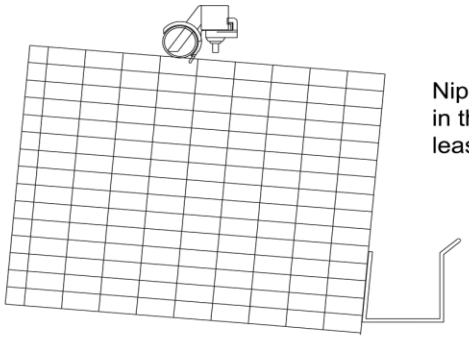
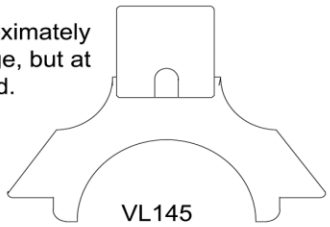
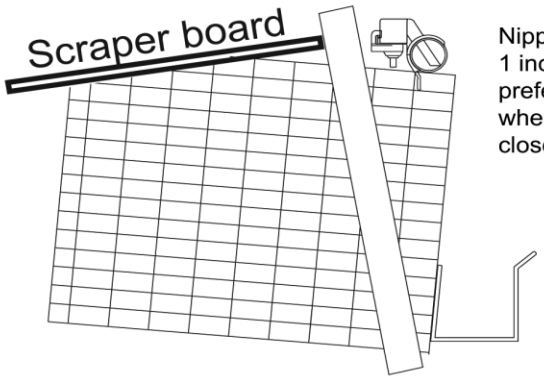
Saddles



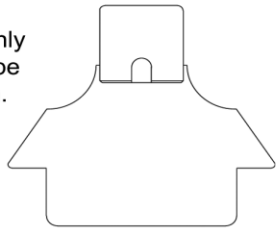
Nipple should be approximately in the middle of the cage, but at least 4 inches from feed.



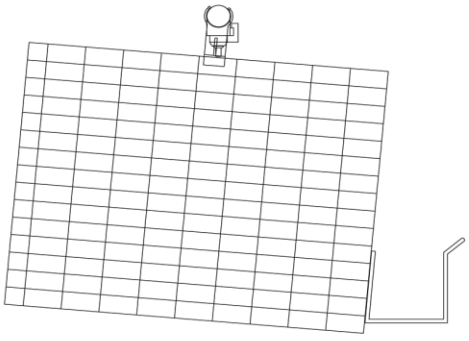
VL145
45° saddle without shield



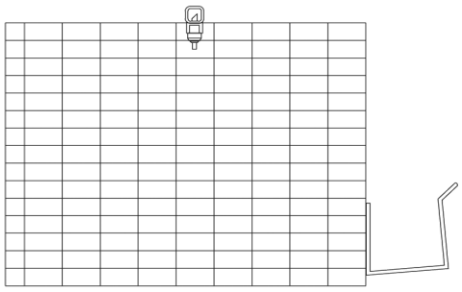
Nipple should be at least 1 inch from feed, but preferably more. Use only when the drinker must be close to the feed trough.



VL155
45° saddle with shield



Standard cage saddle (VS146) with plastic pipe support bracket (VS143).



Standard cage saddle (VS146) with cage clip (VC147).

See page 12 for more information on installing water pipe.

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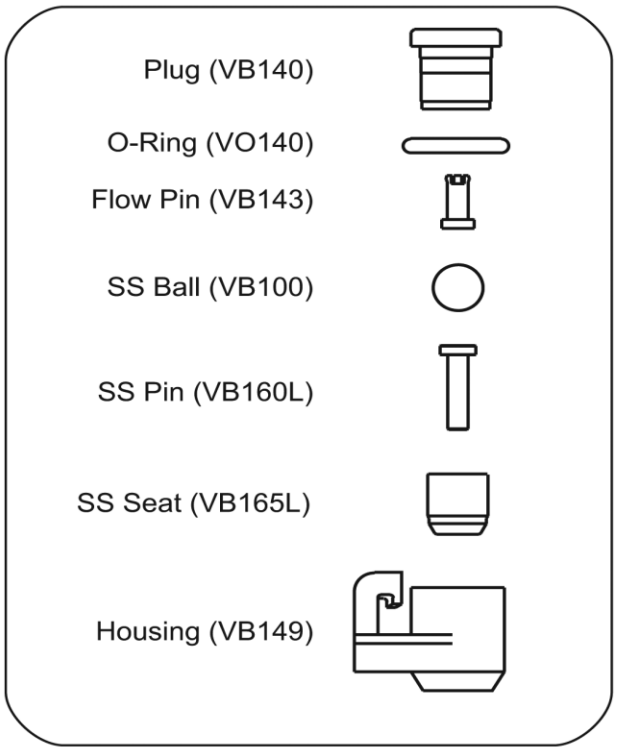
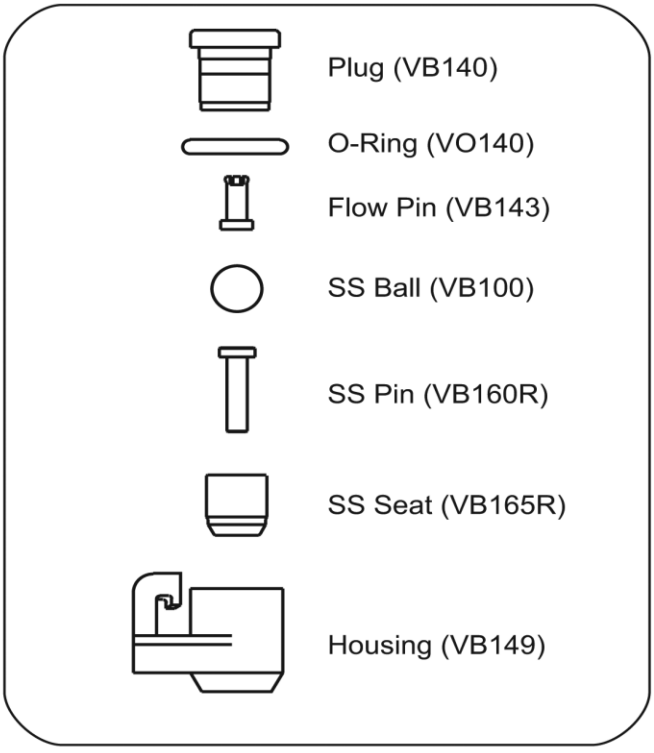
Nipples

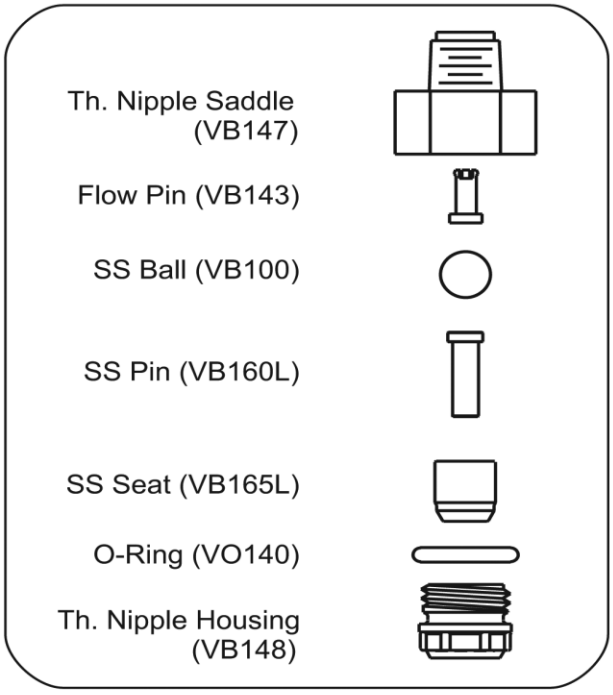
Layer Nipple VL150



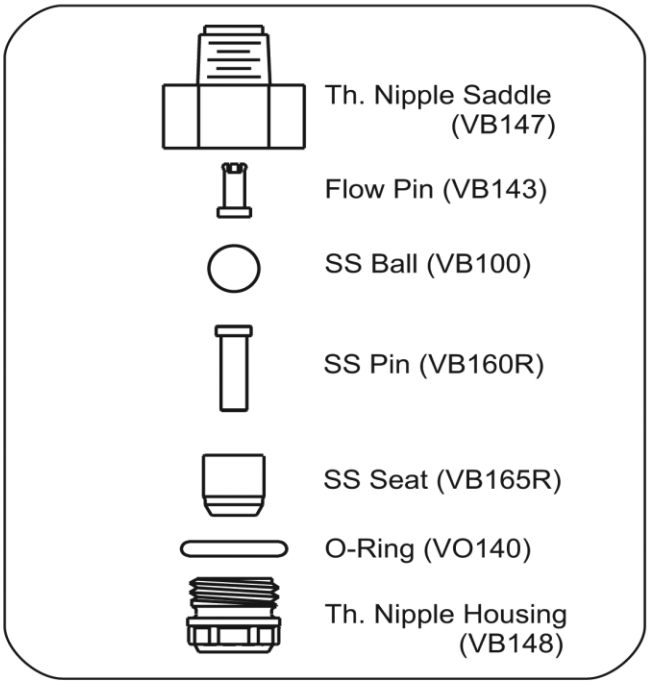
Roaster Nipple VR150



Threaded Nipple VL150THD



Threaded Nipple VR150THD



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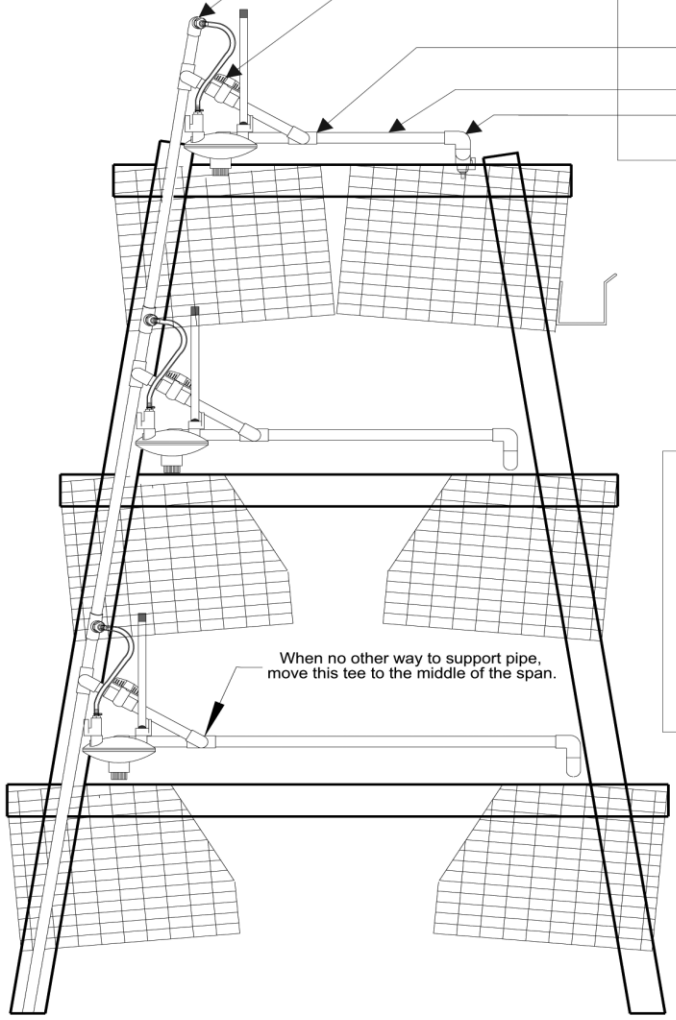
Cage Header Kit

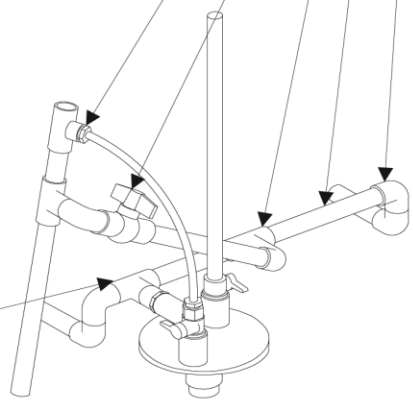
VH100T (TOP DECK ONLY)

- VT134 (3/4" ELL Sx1/2"THD) [1]
- VV801 (3/4" BALL VALVE) [1]
- VT100 (3/4" TEE SxSxS) [3]
- VP001 (3/4" PVC PIPE) [10 FT]
- VT102 (3/4" ELL SxS) [6]



VH100 (BOTTOM DECKS)

- VT102 (3/4" ELL SxS) [6]
- VP001 (3/4" PVC PIPE) [10 FT]
- VT100 (3/4" TEE SxSxS) [3]
- VV801 (3/4" BALL VALVE) [1]
- VT101 (3/4" TEE SxSx1/2"THD) [1]



IMPORTANT: Regulator should be slightly higher than the line to allow for proper air release.

Tilt this tee up to allow even better air release.

(See page 12, bottom illustration, for more info)

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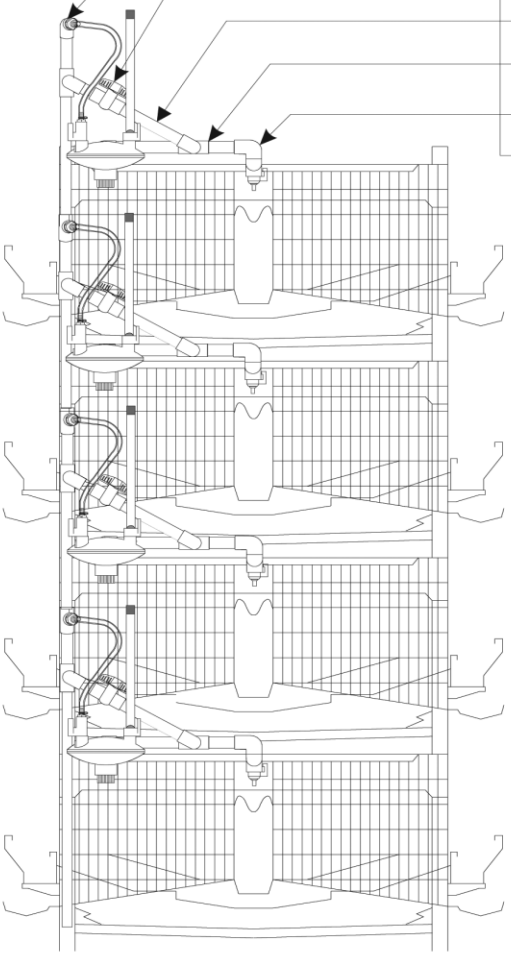
Stacked Cage Header Kit

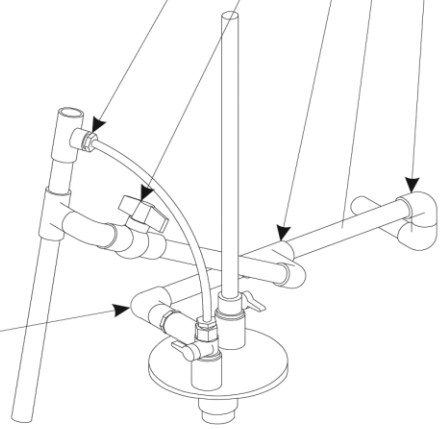
VH100ST (TOP DECK ONLY)

- VT134 (3/4“ ELL Sx1/2” THD) [1]
- VV801 (3/4“ BALL VALVE) [1]
- VP001 (3/4“ PVC PIPE) [10 FT]
- VT100 (3/4“ TEE SxSxS) [2]
- VT102 (3/4“ ELL SxS) [5]



VH100SB (BOTTOM DECKS)

- VT102 (3/4" ELL SxS) [5]
- VP001 (3/4“ PVC PIPE) [10 FT]
- VT100 (3/4" TEE SxSxS) [2]
- VV801 (3/4" BALL VALVE) [1]
- VT101 (3/4" TEE SxSx1/2"THD) [1]



IMPORTANT: Regulator should be slightly higher than the line to allow for proper air release.

Tilt this elbow up to allow even better air release.

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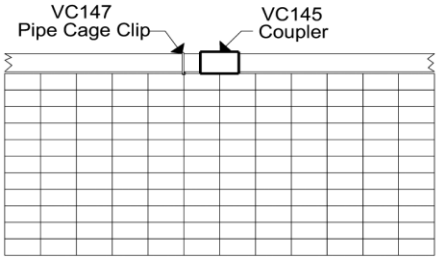
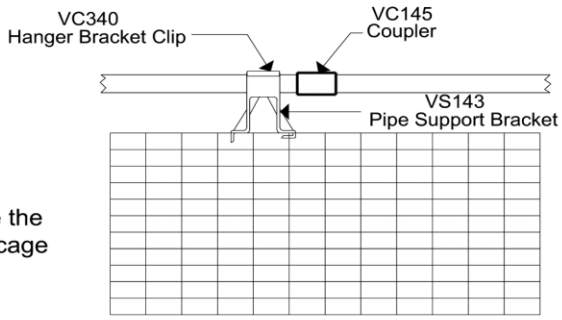
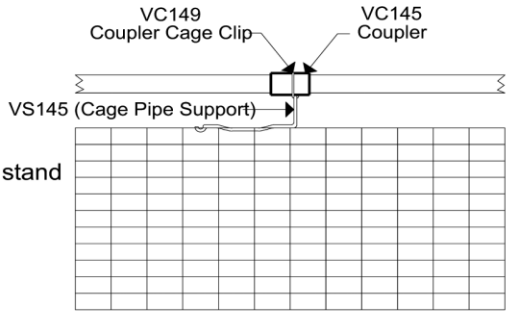
Cage Pipe Installation



Use this cage clip (VC147), when installing the pipe directly on the top. This method would be used with the two 45° saddles and the standard saddle (when the standard saddle is used inside the cage). Keep clip within 1" of connector (VC145).



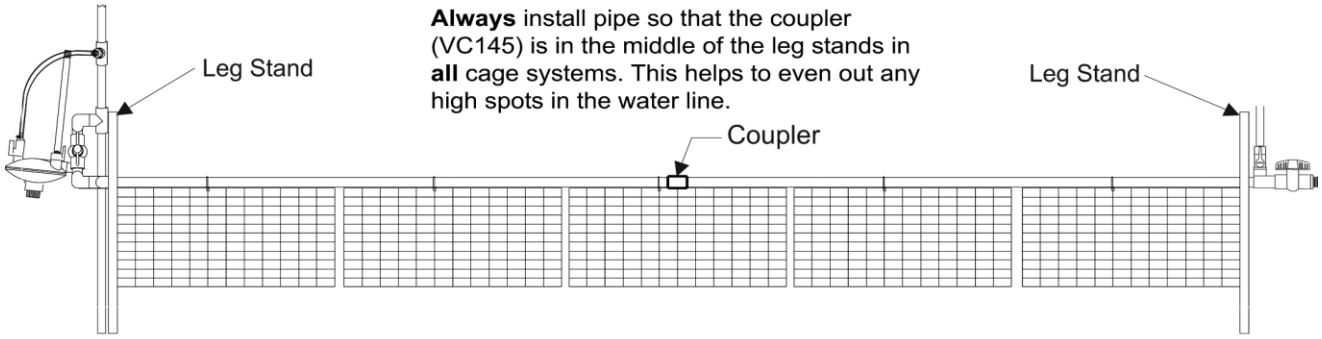
When you want to use standard saddles above the cage, install the plastic cage pipe support.



This is the wire cage stand setup.

Important!

Always install pipe so that the coupler (VC145) is in the middle of the leg stands in **all** cage systems. This helps to even out any high spots in the water line.



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Regulator

1. Screw standpipe assembly into the OUTLET side of regulator.

2. Screw hose connector into 1/2" NPT pipe fitting in the supply pipe (Do not overtighten). **NOTE:** Wrap with 3-4 turns of Teflon tape first.

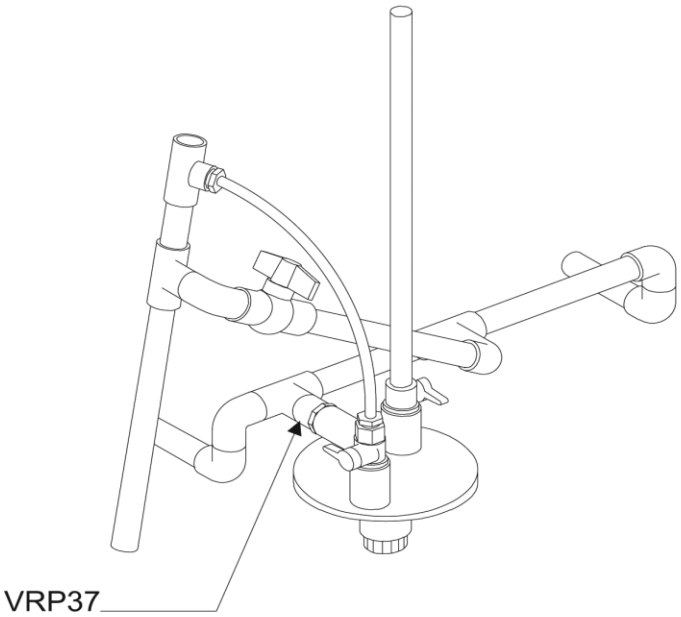
3. Push hose onto hose barb at the water source. **NOTE:** Don't forget to add the hose clamp (VRP40C) first.

4. Push other end of hose onto the barbed end of drop hose intake with shutoff.

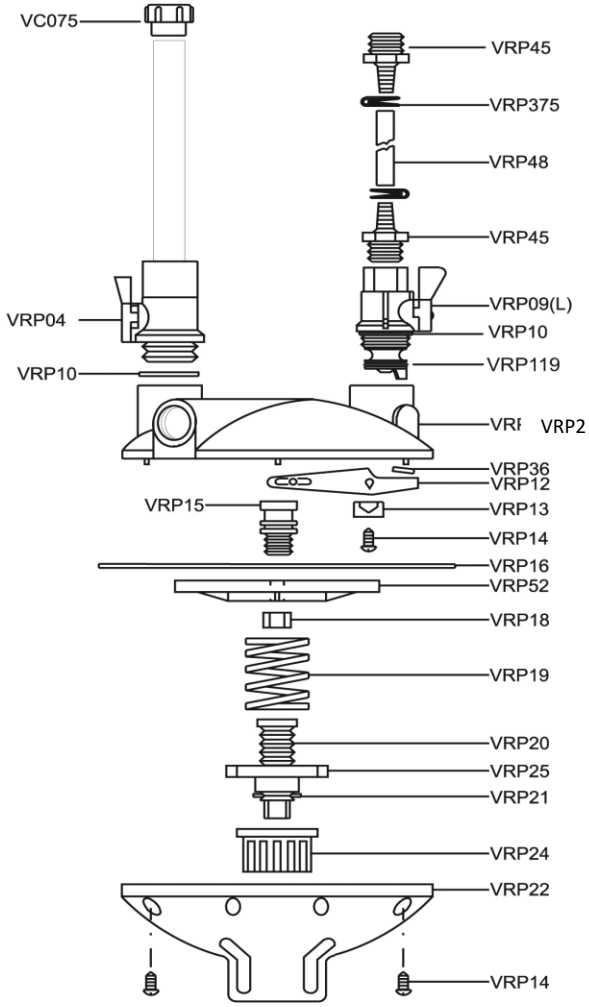
5. Use Teflon tape on the 3/4" adapter (VRP37) and thread into regulator (Do not overtighten). Glue the adapter into the PVC tee.

6. Standpipe plugs (VRP01) should be used when standpipes are removed to keep dirt out of regulator.

Val regulator will supply a maximum length of 700 FT (213 M) of Val Watering Cage System with 2 rows.



VR201



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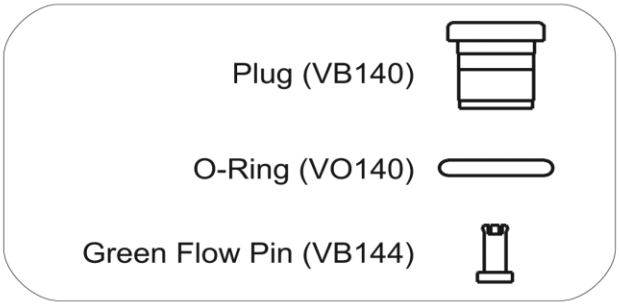
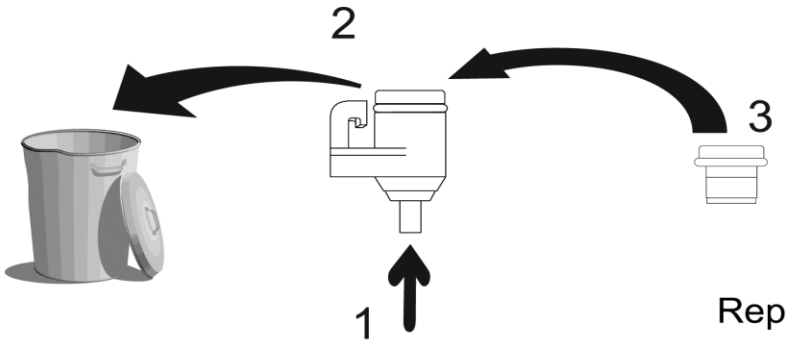
Replacement Caps Kits

When you're getting too much water out of the nipples with the standpipes at their lowest setting, it is probably time to replace the caps. Send a sample (3-5 nipples) to your distributor or directly to Val with your name, address, date of installation and any other helpful information.

When replacing with green caps, remember that the green cap returns the nipple to nearly the same flow that it had when it was new. That means that you need to raise standpipe pressures back to what they were when they were new.

Green Replacement Kit
VB142



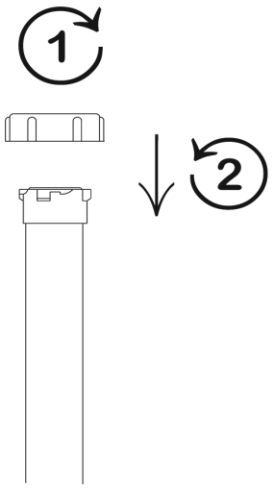


Replacing Caps

1. Push up on the stainless steel pin to loosen the old plug.
2. Pull out old plug and throw away. If the inside is dirty, clean.
3. Push in replacement plug. If necessary, tap on plug lightly.

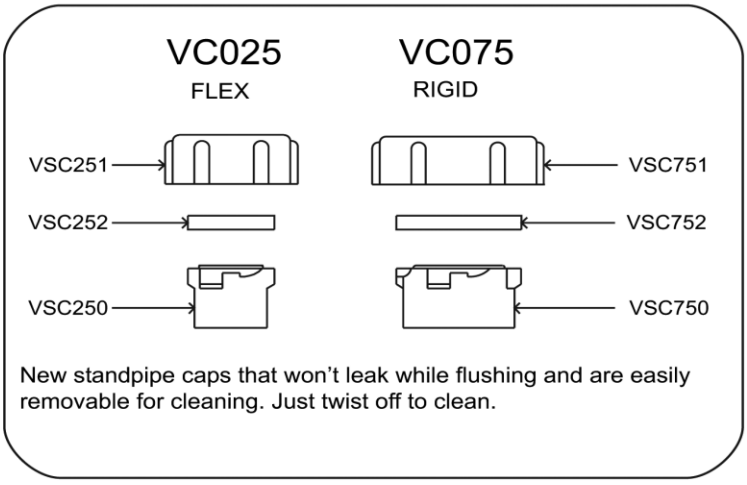
CAUTION! Do not mix the SS balls and SS pins from all the nipples together.This may cause nipples to leak.

Standpipe Caps



1. Turn the cap clockwise to lock.

2. Turn counterclockwise, while pushing down, to unlock for cleaning.



New standpipe caps that won't leak while flushing and are easily removable for cleaning. Just twist off to clean.

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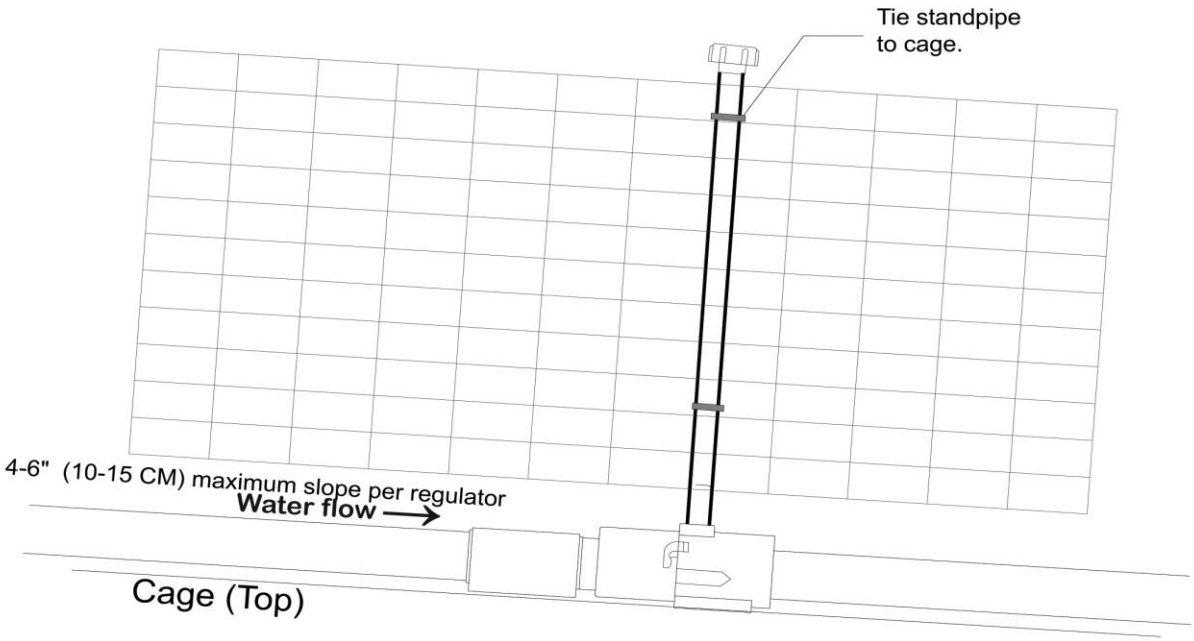
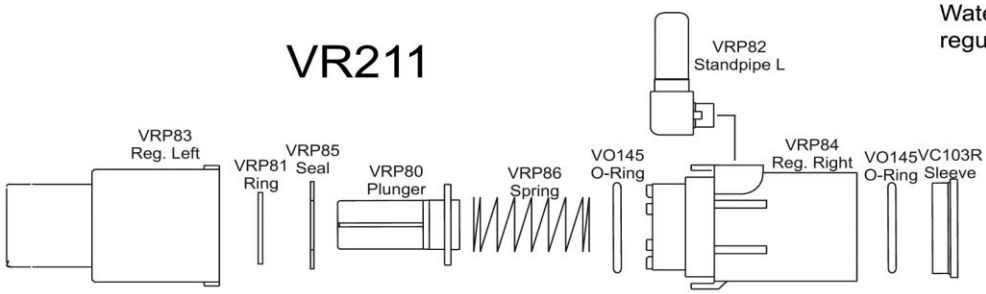
Slope Regulators



VR211

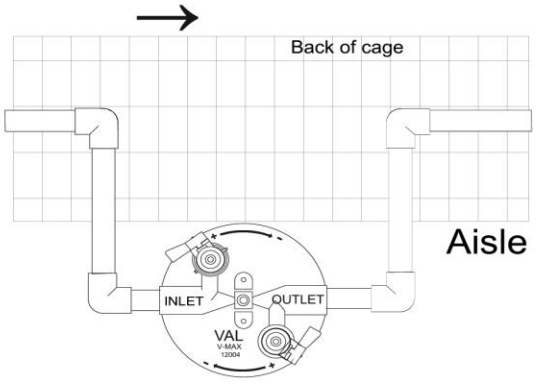
Water must run downhill. Cannot regulate water running uphill.

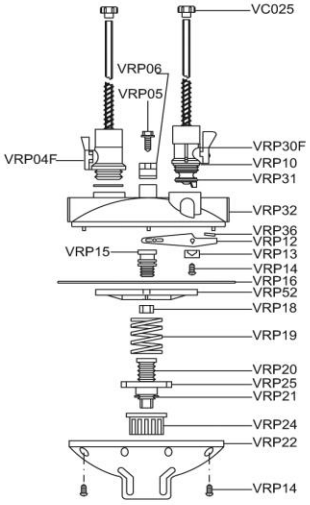


For every 3 VR211s add 1 VR204.

VR204

Water must run downhill. Cannot regulate water running uphill.





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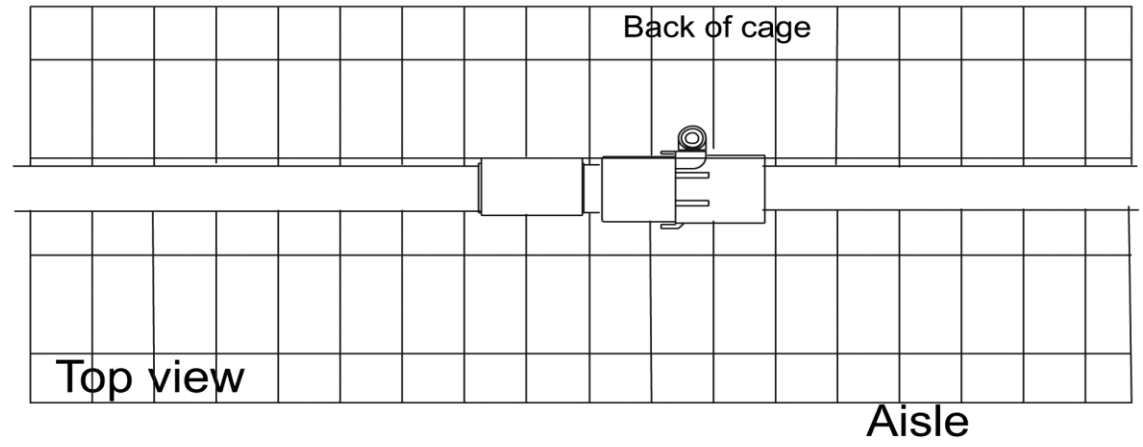
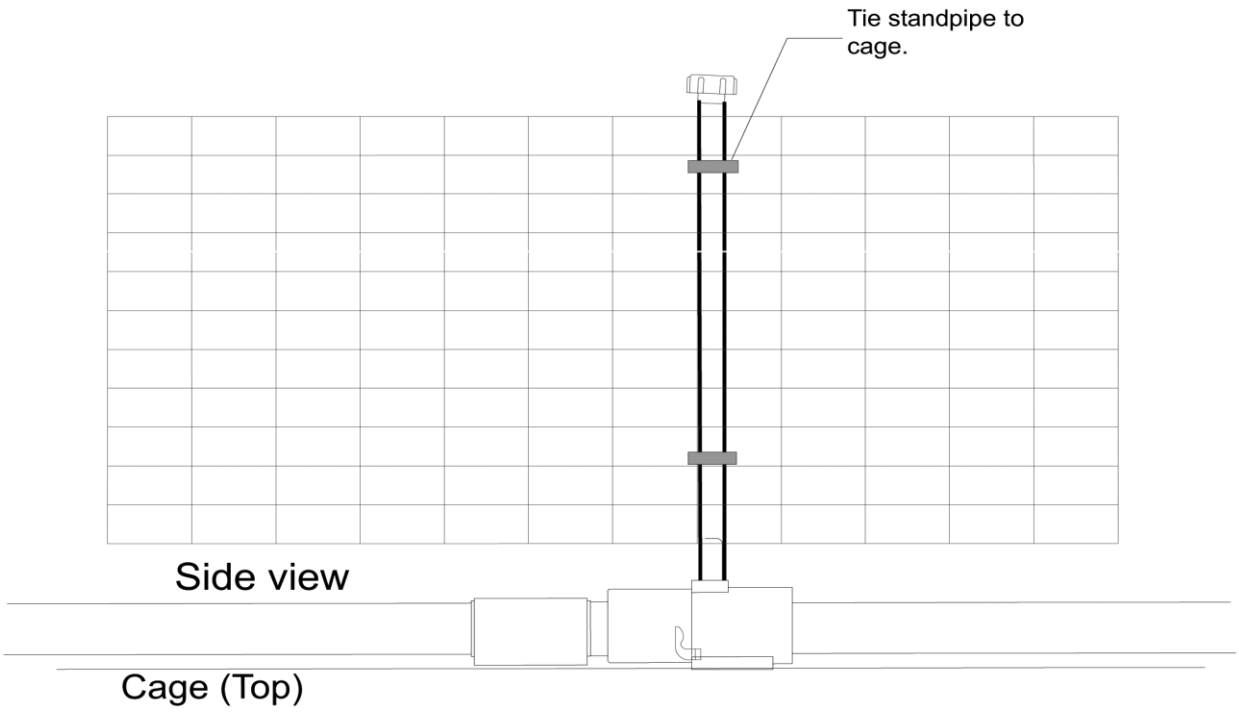
Air Release

VA805 (-24 or -30)





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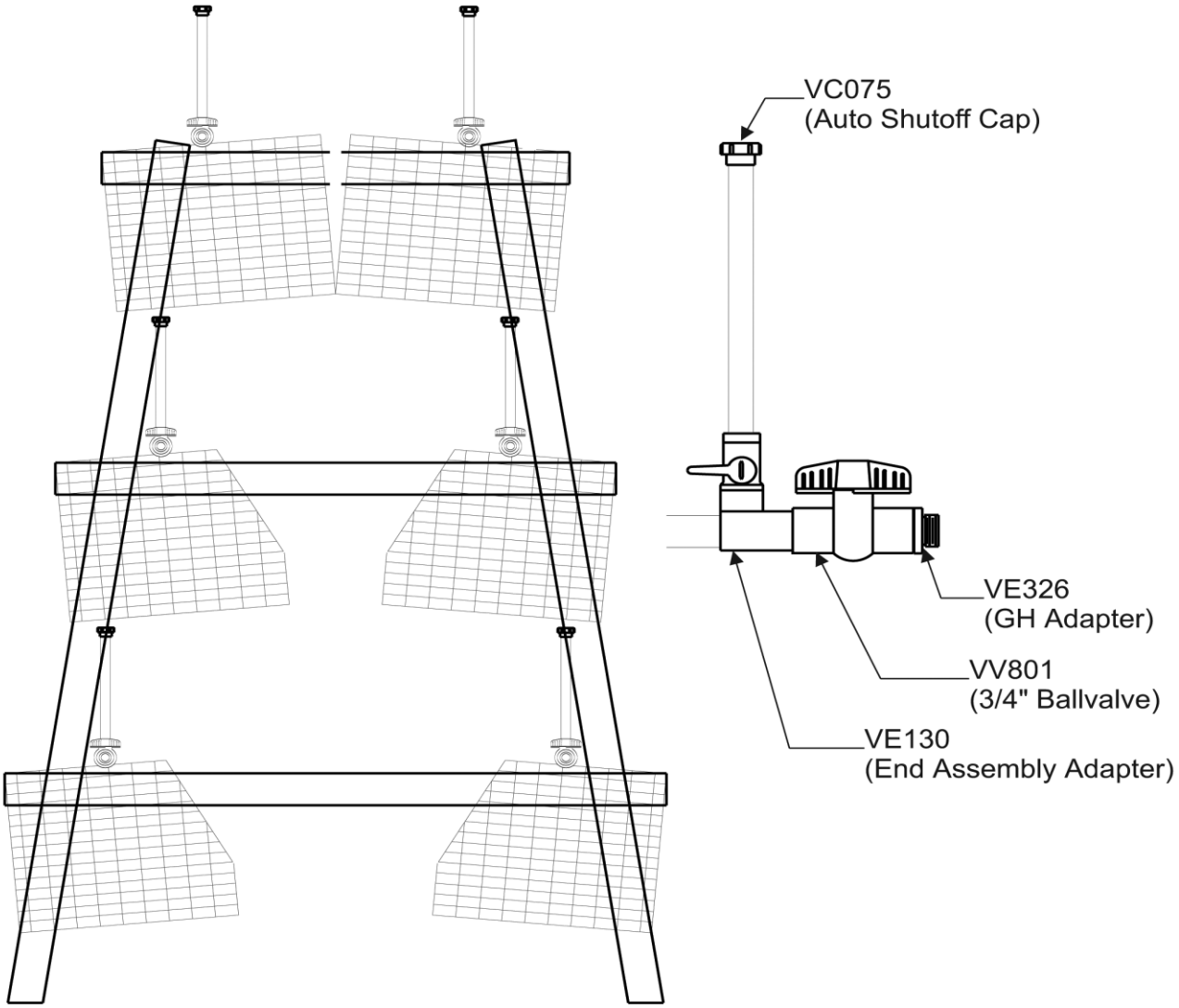
End Assembly



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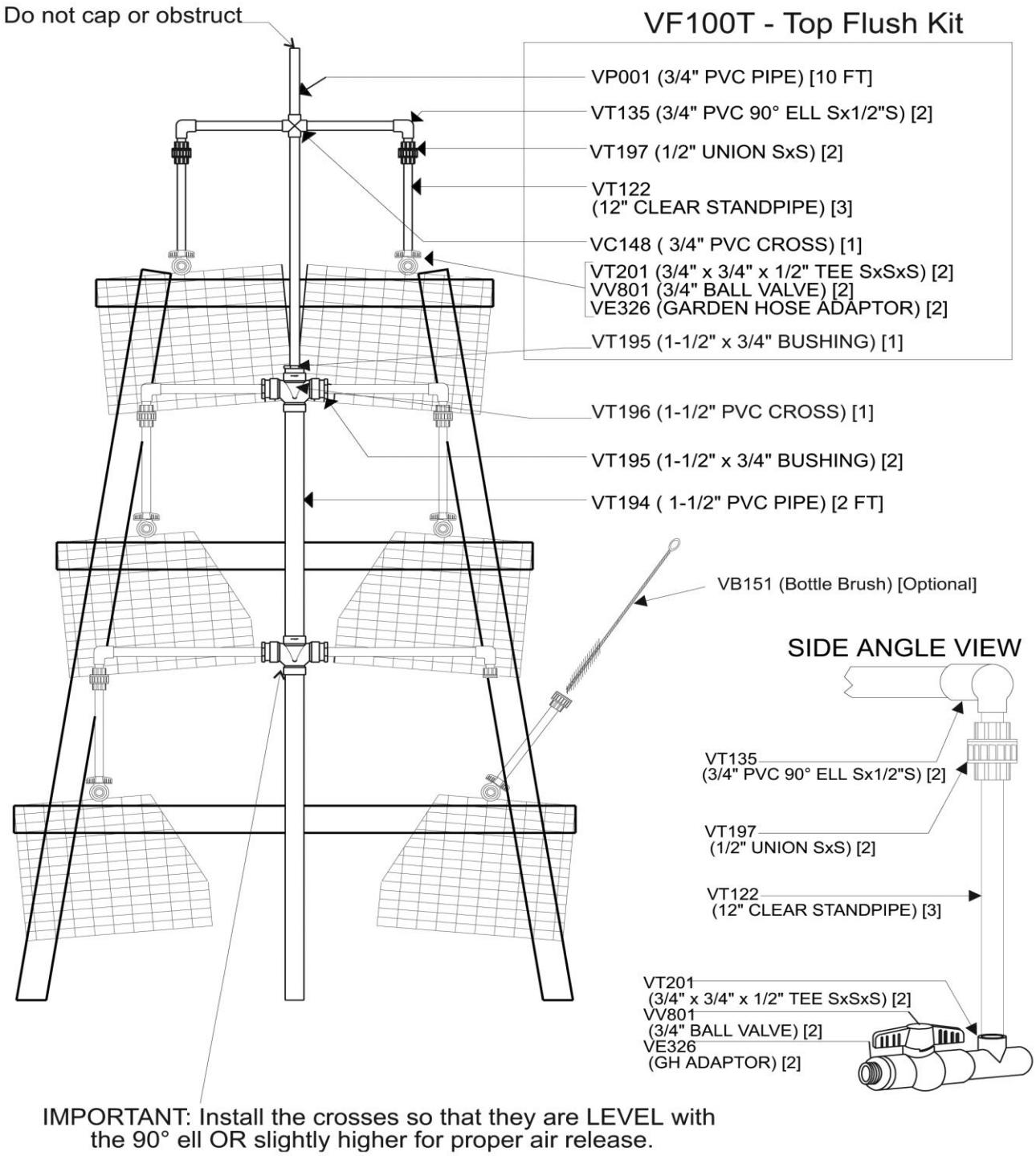
Flush Kit



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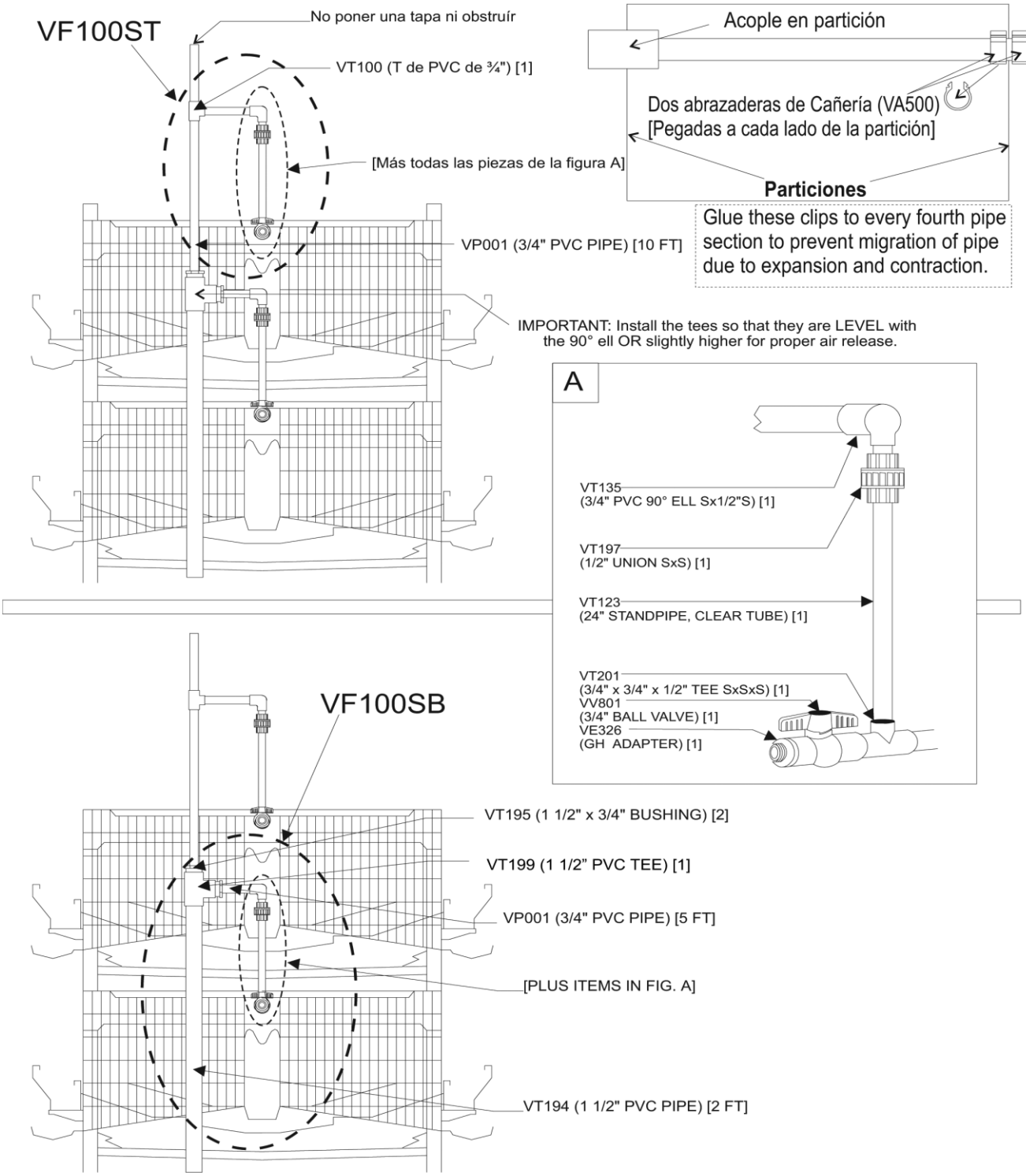
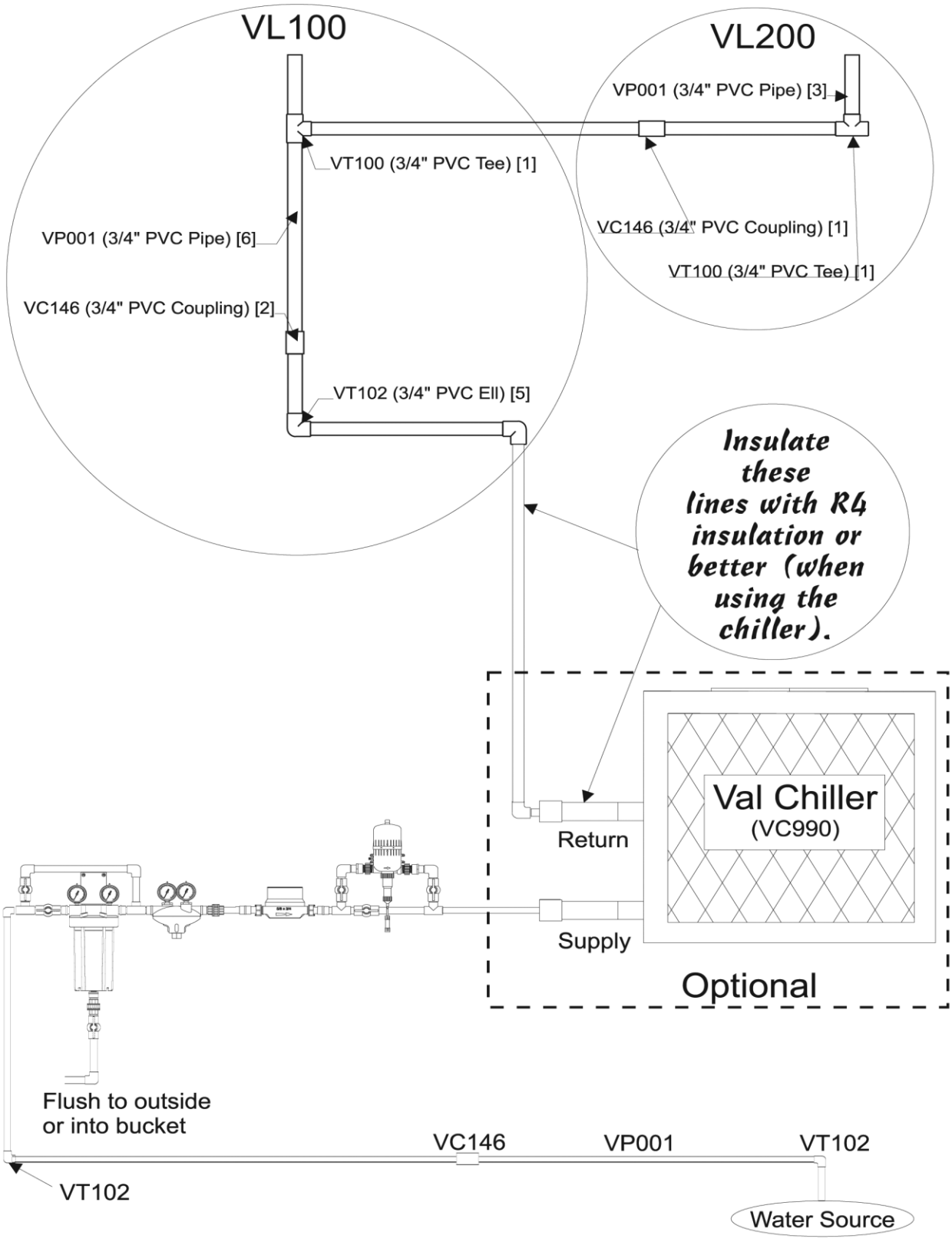
Stacked Cage Flush



Lead-In Kits and Chiller Hookup



STARTGROW INSTALLATION

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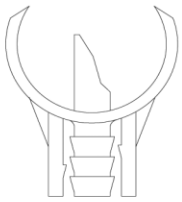
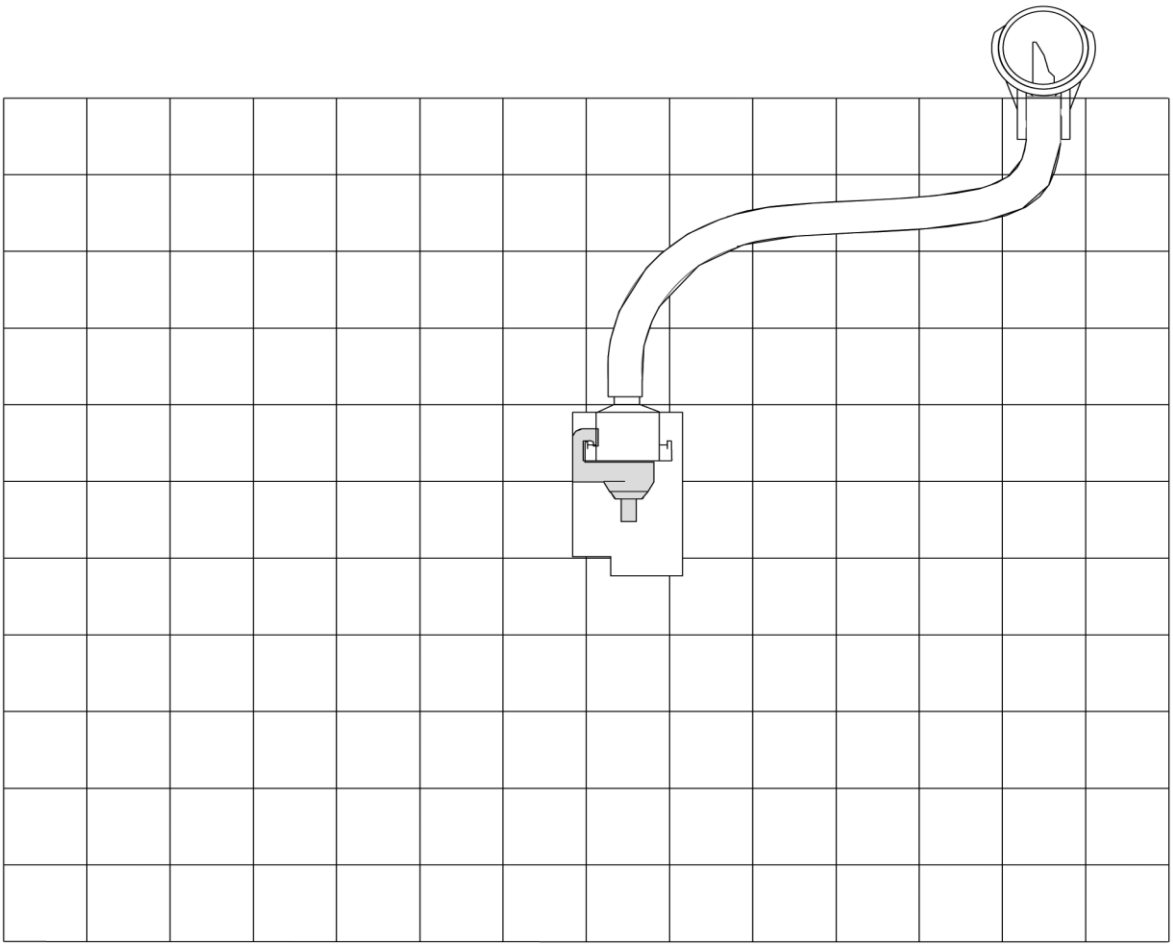
Cage Bracket



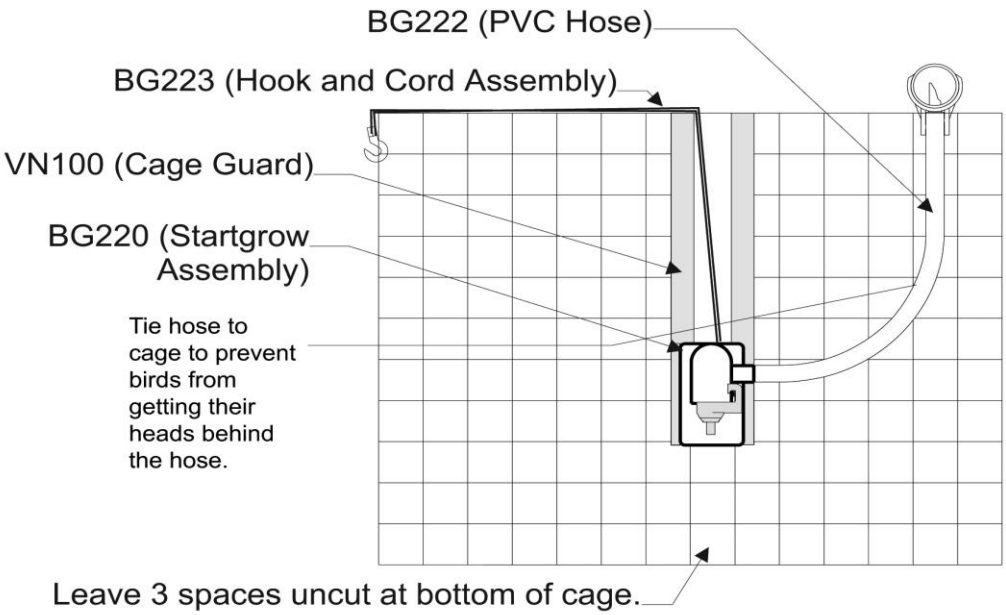
The barbed saddle (VS147) is used on all applications that use green PVC hose (BG222).

The cage bracket (VB130) is one way to move the nipple anywhere in the cage.

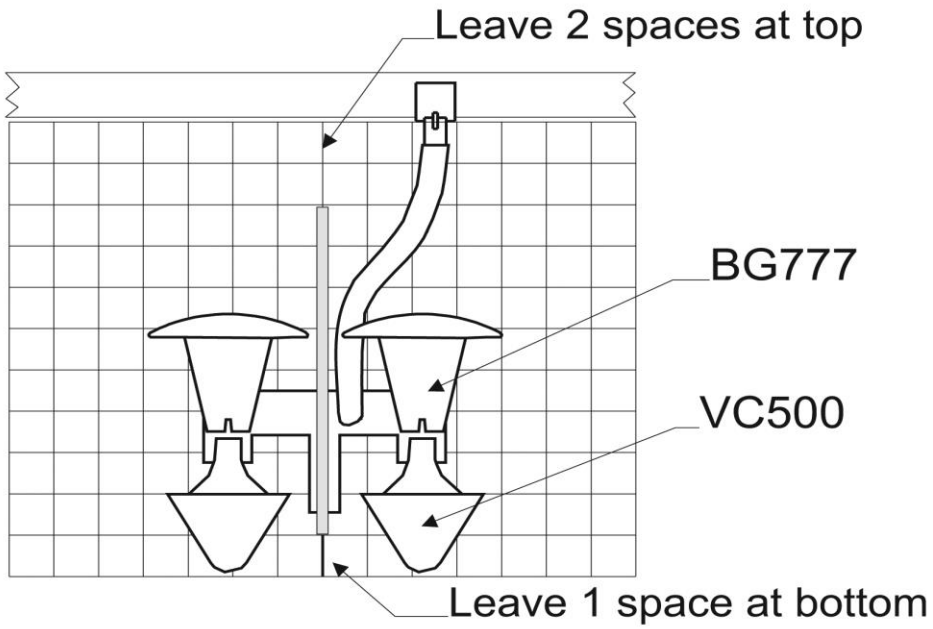


Startgrow

The startgrow assembly makes changing the height of the nipple easy. You can use a cord and hook (BG223) for individual adjustment or the automatic winching system (see page 27) for easier adjustment.



You can alternate with one partition cups and one partition nipples to give pullets exposure to both types of drinker.



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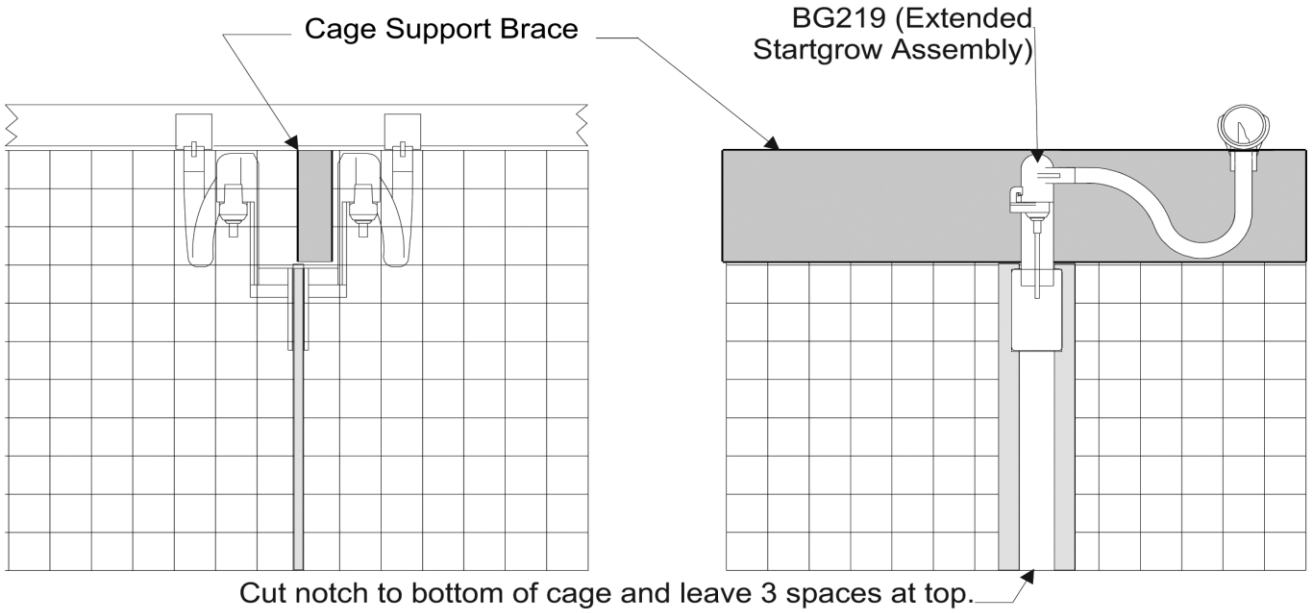
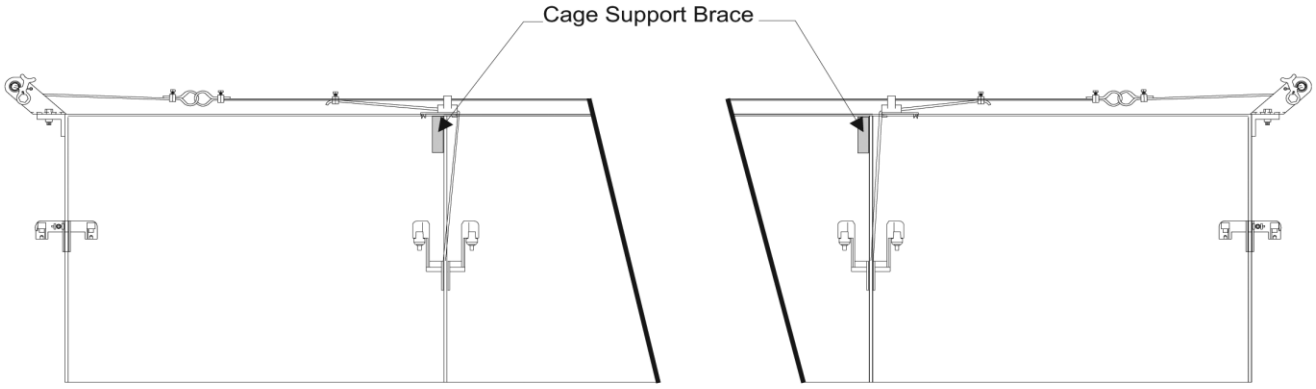
Extended Startgrow

Use the extended startgrow for partitions with the cage stands.



Autowinching with extended startgrow



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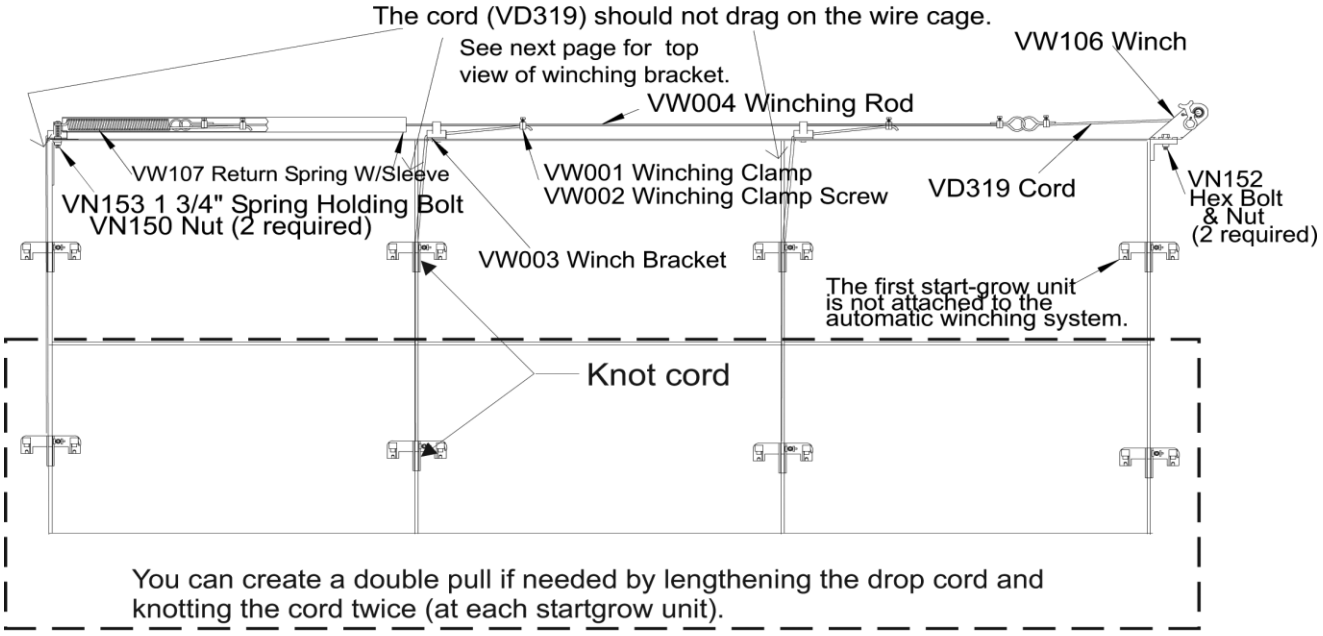
Automatic Winching (Top)

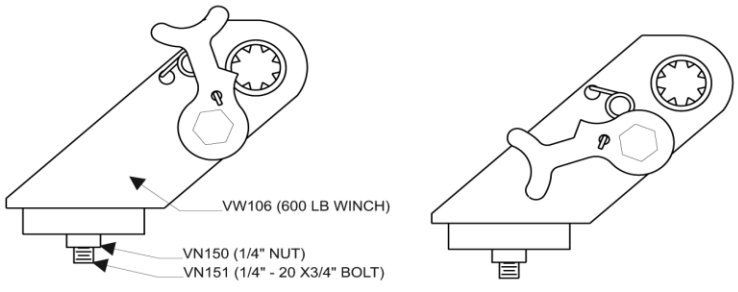
Cable outside cage



Each winch can pull 220 startgrow units.

Example: A 24" cage single pull system would work up to 440 FT (or up to 220 FT for a double pull system).

VW106 - Winch



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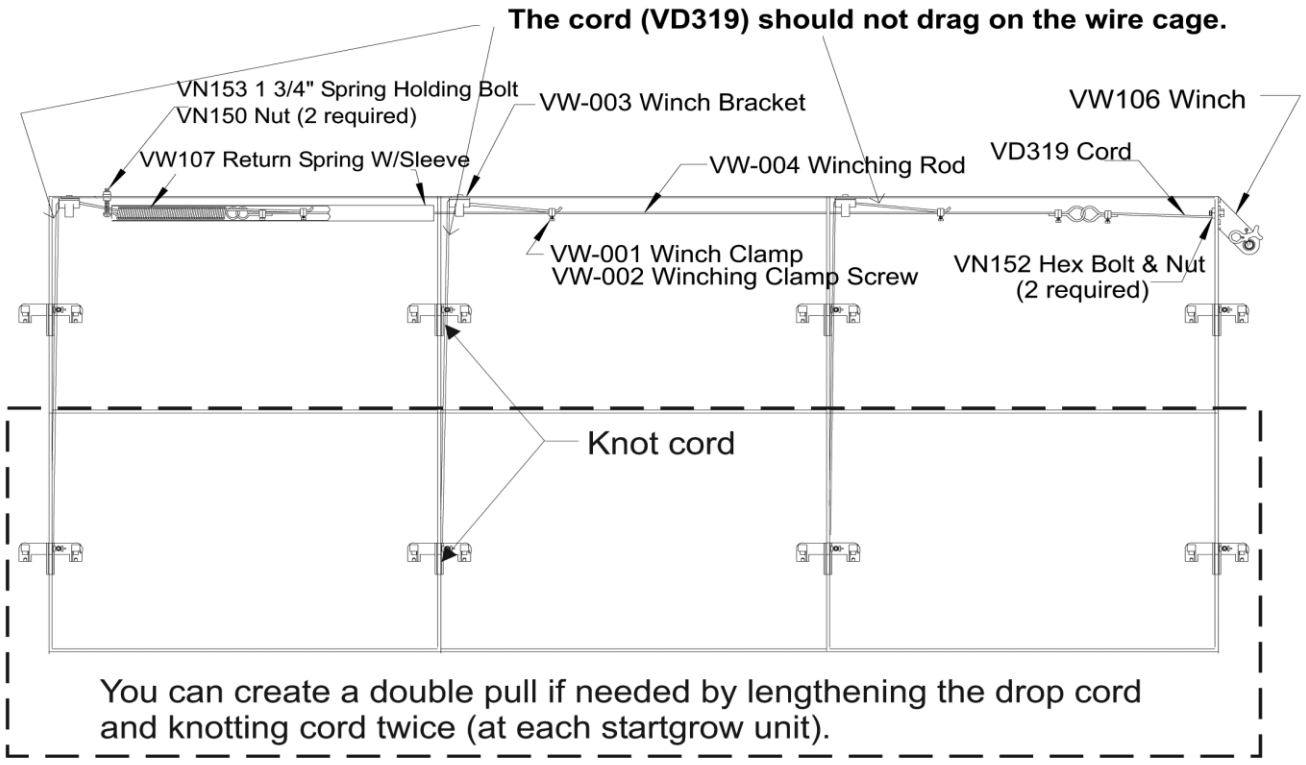
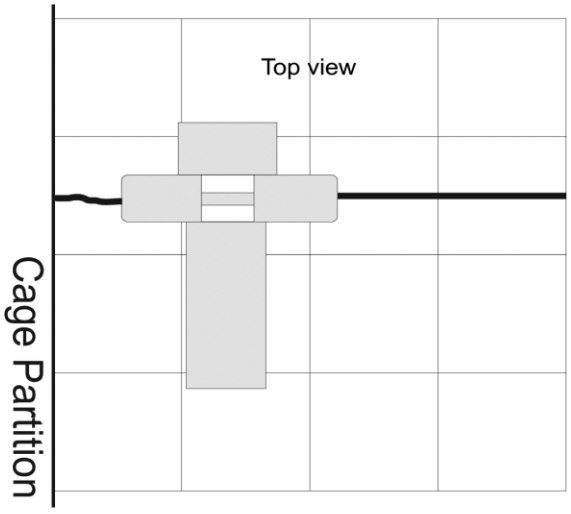
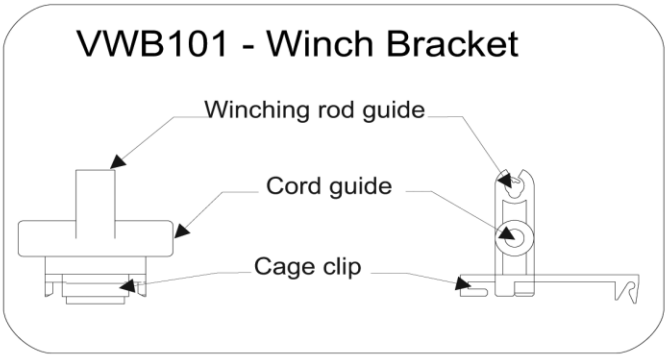
Automatic Winching (Bottom)

Cable inside cage

The bottom setup is for when the scraper board is right on top of the cage, leaving no room for brackets and rod.







OPERATION & MANAGEMENT

Layer Management Procedures

Some managers raise standpipe pressure to 12-14" to start until case weight (48 LBS per 30 dozen) is reached before lowering pressure to maintenance level.

Moist or wet droppings *can* be caused by excessive water consumption in hot weather or by too much salt in the diet, by disease or other factors. If the nipples are suspected, send a sample (3-5 nipples) to your distributor or directly to Val Products with your name, address, age of system and any other pertinent data.

Important

When starting layers that have been raised as pullets with cups or bell drinkers, turn on bright lights for the first 5 days and hold feed for the first 8 hours in the cages. This will help adjust them to nipple drinkers.

Notes

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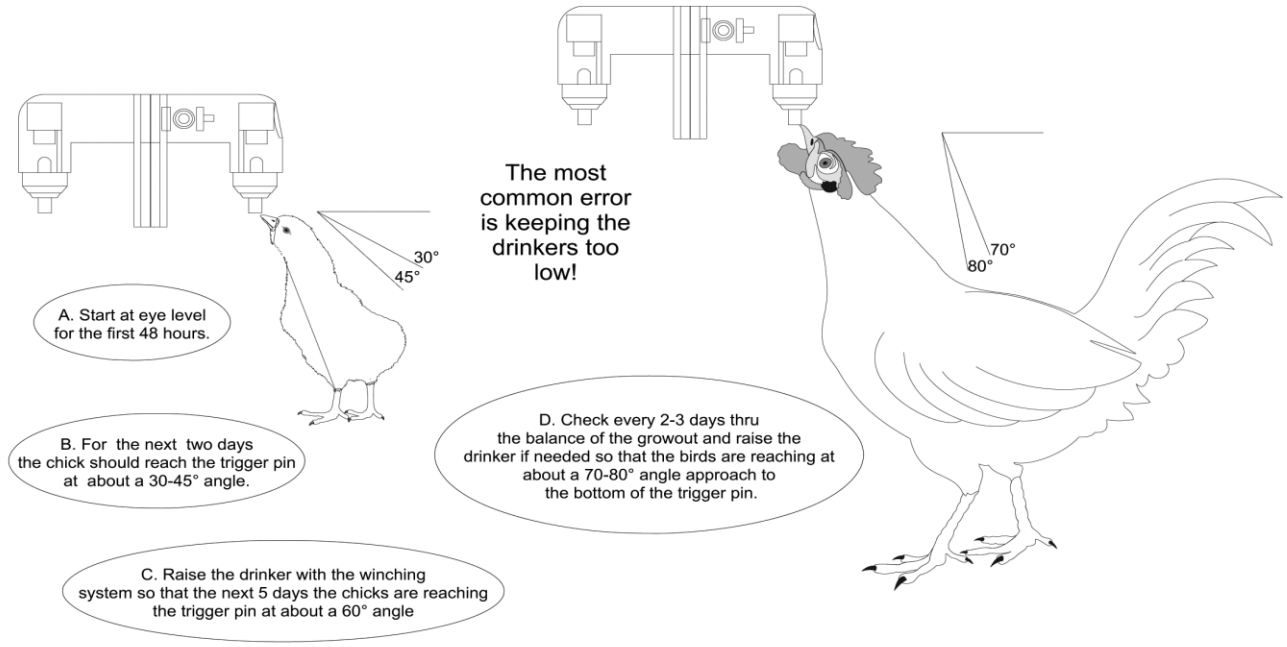
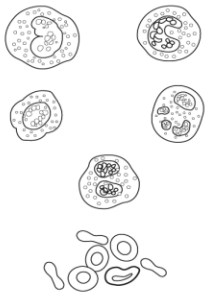
Layer Nipple and **V-Max Regulator Management**

The two most important procedures for the Layer Nipple are ① height of drinker from the floor in relation to the bird and ② amount of pressure in the system (water height in the standpipe). Both of these procedures must change during the growout cycle. The following instructions detail the various changes of the cycle.



Triple the life of your V-Max Regulator diaphragm by adjusting your regulator back to about a 2-4 inch water level immediately after birds are taken out of the house (to relieve the spring pressure on the diaphragm). This is also very practical because the regulator must be readjusted to the 2-4 inch water level anyway when chicks are brought into the house for startup.

Cleaning Water Lines



A regular cleaning program should be used to eliminate water line contaminants; including bacteria, sludge, drug residues and hard water deposits.

GENERAL CLEANING

1. Mix cleaning solution as indicated below.
2. Fill watering system with solution.
3. Allow solution to sit 1 to 3 hours.
4. Flush system with plain water using high pressure.
5. Check filters.

REGULAR MAINTENANCE

Watering system should be cleaned every four months (or every month in hot weather) during production with one of the following **at a ratio of 1:128**:

Administration	Vinegar for alkaline water	Citric Acid for alkaline water	Ammonia for acid base water
Medicator	64 fl oz. white household vinegar + 64 fl oz. water = 1 gal. of stock	1 pack 205 gm citric acid + 128 fl oz. water = 1 gal. of stock	4 fl oz. clear household ammonia + 124 fl oz. water = 1 gal. of stock

BETWEEN FLOCKS

Watering system should be cleaned between flocks. A stronger cleaning solution can be used, since no birds will be drinking the water. It is important to thoroughly flush the system with plain water to prevent storing high concentrations of cleaning solution in the watering system until the next flock is placed in the house.

Administration	ProClean	Vinegar for alkaline water	Citric Acid for alkaline water	Ammonia for acid base water
Medicator	128 fl oz. ProClean = 1 gal. of stock	128 fl oz. white household vinegar = 1 gal. of stock	4 packs 205 gm citric acid + 128 fl oz. water = 1 gal. of stock	16 fl oz. clear household ammonia + 112 fl oz. water = 1 gal. of stock

CHLORIN

Chlorine is now considered to be the key salmonella fighter.

When using chlorine, the following dosages and application methods should be followed:

Administration	Chlorine
Medicator	5 fl oz. bleach + 123 fl oz. water = 1 gallon of stock solution

This solution should run out in the poultry house through the medicator at 128 parts of water to 1 part of stock solution. This cleans the whole system including Val nipples drinkers and sterilizes the entire system.

Do not place chlorine agents in the system when the house is vacant. This places heavy residue in the pipes and nipple drinkers which can clog up various parts of

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Vaccination Procedure

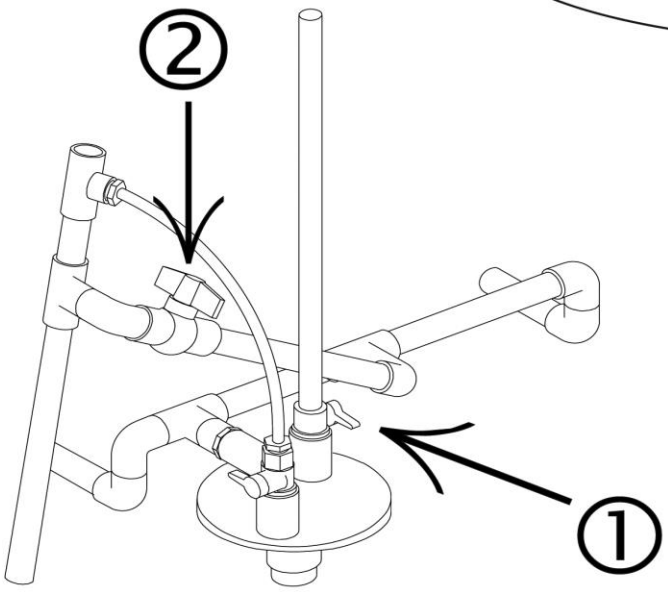
Medicate during peak water demand.

1. Withdraw chlorine 12 hours prior to vaccination or medication.
2. Neutralize with milk replacer for 3 hours prior to start of vaccination.
3. At the end of the withdrawal time, mix the vaccination in the proportion indicated on the packaging (if it is powder, make sure it is completely dissolved). **NOTE:** Add food color dye to mixture if there is no color to the vaccine or see #6 for quantity of water in pipe to drain.
4. Put the medicator tube into the bucket (clip the tube to the side of the bucket to keep the filter off the bottom of the bucket) and lower the water lines to the proper height.
5. Flush the lines until you see the color at the end of the line or flush 1/3 gallons (1.2 L) per 10 FT piece of pipe if there is no color. This will give the birds cooler water and ensure the maximum effectiveness of the medication.
6. When the vaccination bucket is empty, fill it with clean water to flush the medicator. Periodically disassemble and clean your injection assembly. See your medicator manual for more info.

Please keep my water clean and cool.

Flushing Procedure

If you don't have the Val flush kit (page 19) then don't forget to hook up a hose and open the ballvalve on the end assembly.



1. If you have red standpipe caps, close the standpipe shutoffs on regulator and end assembly. If you have the new, yellow shutoff caps, go to step 2.
2. Open the ballvalve to flush and then close when done flushing.
3. Open the standpipe shutoffs on regulator and end assembly if you closed them in step 1.

Don't flush more than one tier at a time or you will pull air into the

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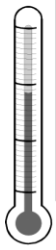
Important Water Facts

Water Quality

Contaminant	Recommendation
TDS- Total Dissolved Solids	< 3000 mg/liter
* Hardness (calcium and magnesium salts)	< 20 mg/liter
Salinity	< 1000 PPM
Nitrates (NO_3)	< 5 PPM
Nitrites (NO_2)	< 5 PPM
Total bacterial count	< 3000/ml
Total coliform count	< 300/ml
Total E. coli	0
pH	6-9
Iron	< .5 mg/L

* Hard water produces deposits on nipples and water faucets and decreases their life and usefulness.



Water Temperature	Bird Reaction
50-60°F (10-15°C)	Comfortable drinking
> 86°F (30°C)	Reduction in drinking
> 111°F (44°C)	Refusal to drink

Water temperature is also an important factor in weight maintenance. Water lines outside the poultry house should be buried at least 2 FT (61 CM) underground. Water lines inside the house (especially when the lines run against an uninsulated roof) should be insulated R4 or better. Tanks should be painted white or silver and shaded from the sun when possible. If water is still not cool enough, the Val Chiller unit (VC990) is recommended. See page 21.

I can't drink hot water.

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Chemical Resistance

Do not use these chemicals on or in the Val Watering System.

Acetaldehyde	Dow Corning® Molykote 111	Ortho® Isotex Insect Spray
Acetone	Dow Corning® Silicone Fluid DC 230	Ortho® Home Orchard Spray
Acetophenone	Dowgard® Permanent Anti-Freeze	Petroleum Jelly
alpha-Chloronapthalene	Ethyl Alcohol	Phenol
Amchem Ridoline 322®	Ethyl Acetate	Pine Oil
Amchem Ridoline 421®	Ethylene Dichloride	Porion Ink
Amchem Ridoline 804®	Ethylene Chloride	Propylene Glycol
Amchem Ridoline 53®	Formaldehyde >5%	PVC Upholstery Materials
Andis® Hair Clipper Lube	Gasoline	Pyrethrin
Balkamp® Sil Glyde	Isopropyl Alcohol	Shell Diala AX®
Benzene	Johnson's® No Roach	Shell Tellus 33®
Brake Fluid	Kerosene	Stoddard® Solvent
Bromine	Kiwi® Shoe Polish (Solid)	Sulfur Dioxide
Butyl Ether	meta-Cresol	Sunoco Sunvis 931®
Carbon Tetrachloride	Methanol	Tenneco® L465 Synthetic
Chlordane	Methyl Isobutyl Ketone	Toluene
Chlorobenzene	Methyl Ethyl Ketone	Toothpaste
Chloroform	Molykote 557®	Turpentine
Cyelohexanone	Naptha (VM & P)	Xylene
Diethyl Ketone	Novus® Plastic Polish #1/#2	
Dioctyl Phthalate	Nye Rheolube 745R-2®	
Dishwashing Detergents	Octyl Alcohol	

This is only a partial list. Remember not to use any oil-based products.

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