



VRH INSTRUCTIONS FOR INSTALLATION





DESCRIPTION

1. CHARACTERISTICS

2. USAGE AND APPLICATIONS

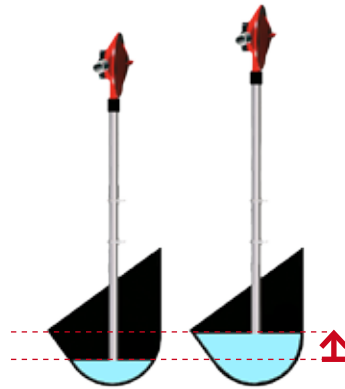
3. ADVANTAGES AND BENEFITS

1. CHARACTERISTICS

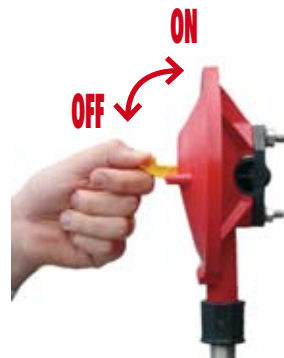
The VR-H valve is designed to supply water at a constant and homogeneous level in the recipients it is connected to.

The VR-H valve is worked by the vacuum created inside the valve. What makes it different is that it works without any mechanism on the surface of the water in the tank.

Permits regulation of the water level according to the position of the tube.

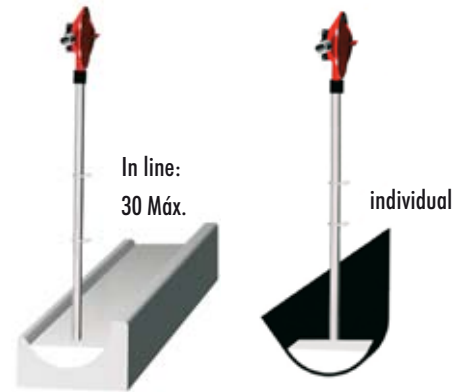


Each valve can be closed individually by working the trigger on the front flap of the valve.



2. USAGE AND APPLICATIONS

It is adequate for any production stage in farm: weaning, fattening, farrowing and/or gestation, in both individual and group pens.



The VR-H Valve can be combined with various Rotecna products matching the needs of different production phases as well as making the mounting, usage and maintenance easier.



in line



individual

3. ADVANTAGES AND BENEFITS

IN WEANING AND FINISHING:

A constant-level drinker without mechanisms increases the animals' water consumption (no learning is required) and reduces water losses, with the apparent water waste dropping by up to 50%.



IN FARROWING:

A constant water level increases the sow's water consumption helping to increase milk production and weight of the weaned piglets. The water waste can be reduced up to 50%.



IN GESTATION:

Economic, comfortable and easy installation.

Maintains a homogeneous water level in the entire length of the feeder.

To change the water level in the feeder, you have to change the height of the valve downpipe.





- PRODUCTS
- TECHNICAL DETAILS
- PACKAGING



PRODUCT	VR-H				VR-H KEY	VR-H ADAPTER
APPEARANCE						
tube	X	X	•	•		
Ø1/2" line adapter	X	•	X	•		•
Code	1160200P	1160400P	1160350P	1160300P	12600030	VRH0D05
Group	EA				EB	EB
TECHNICAL DETAILS						
N. animals x VR-H	1 - 30					
	minimum		maximum			
Pressure	0,7 bar		3 bar			
Volume	2,5 l/min		7 L/min			
PACKAGING						
Units / Box	24	24	24	24		
Units / Pallet	504	504	504	504		
Dimensions Pallet, cm	115x125x125	115x125x125		100x120x145		
Weight Palet, kg	-	-		-		



VR-H



VR-H WITH
PIPE CLAMP
for tube of 1"Ø



VR-H WITH
ADAPTER
for tube of 1/2"Ø



PRODUCTS with VR-H	SWING DRINKER WITH VR-H	SWING DRINKER	SWING DRINKER MAXI	EASY DRINKER	SET FOR MAXIWET
APPEARANCE					
VR-H WITH TUBE	•	X	X	X	X
Code	11300000	1020000001	17900000	15400000	18000023
Group	EC				
USAGE					
GESTATION	X	X	•	X	X
FARROWING	X	X	X	• (sow and sucking piglets)	X
WEANING	•	•	X	X	•
FINISHING	•	•	•	•	X
WEAN TO FINISH	•	•	X	•	•



INSTALLATION

• MINIMUM WORKING CONDITIONS

•

• HOW IT WORKS

MINIMUM WORKING CONDITIONS:

A Pressure:

For the best performance the water level VR-H requires the water pressure from 1 to 1,5 bar.

Even so, the water level has a margin corresponding to an optimal performance with the minimum pressure of 0.7 kg/cm² and the maximum of 3 bar.

! *If the lower limit is used, any change can lead to working outside the VR-H's working conditions and to its malfunction.*

B Water supply pipe:

According to the waterflow required by the installation, the waterpipes should have the diameter that provides the optimum functioning of the system.

! *A pipe with an insufficient diameter for the required flow would cause a pressure drop in the pipe.*

C Downpipe:

It is very important for the threaded joints on the pipe to be well sealed.

If the joints let the air through, the valve will not close. This will not be seen visually (water leaking from the joint), as the inner chamber and the downpipe will be under the negative pressure, one atmosphere at the most.

! *Thus you are recommended to wrap Teflon round the screw threads at least 15 times.*

DIMENSIONS:

1 VR-H Valve is recommended in gestations:

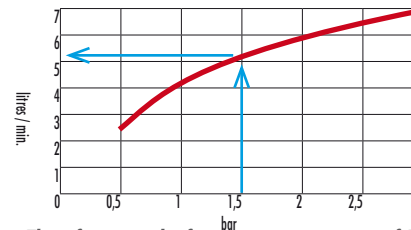


To design the installation the following parameters should be taken into account:

- Minimum line pressure
- Number of valves
- Distribution of the valves

The water flow and pressure will determine to a large degree the number of valves that can be mounted in each line or water piping stretch.

The flow in one valve will be approximately that shown in the attached table.



Thus, for example, for a constant pressure of 1,5 bars in the feed pipe, the flow at the valve will be approximately 5 litres/min.

To calculate the installation parameters you can follow the figures of the below mentioned table (taking into account other factors that can interfere in the calculation, we offer to fix the water flow speed at 1,5 m/s and take the maximum values of the water flow as approximate ones):

Ø interior (inches)	Ø exterior (millimetre)	Polyethylene tube at 4 bar	
		Q (m ³ /h)	Q (L/min)
1/2"	20	0,7	11,7
3/4"	25	1,8	30,0
1"	32	3,1	51,7
1 1/4"	40	4,8	80,0
1 1/2"	50	7,5	125,0
2"	63	11,9	198,3
2 1/2"	75	17,9	298,3
3"	90	24,4	406,7
4"	110	43,8	730,0
5"	125	56,5	941,7
6"	140	70,8	1180,0

HOW DOES IT WORK?

Until the water covers the bottom end of the VR-H down-pipe, the water flows regularly.

When the water level covers the bottom of the pipe, the air cannot enter inside and as a result a small water column is formed inside the pipe that eventually generates a vacuum inside the circuit and works the valve membrane, closing it.



The inner membrane has double side and double usage.



The sight of the interior of the VR-H Valve.

The valve starts working again when the water level falls below the bottom of the downpipe. The air can enter inside the pipe and the valve and this way annuls the vacuum effect on the membrane, opening the VRH valve again.

! ENSURE THAT AIR HAS BEEN PURGED PROPERLY FROM THE INSTALLATION

To open the VR-H Valve you should use ONLY the Rotecna VR-H key.

Ensure that the key is adjusted perfectly in the rib to open/ close the valve easily.

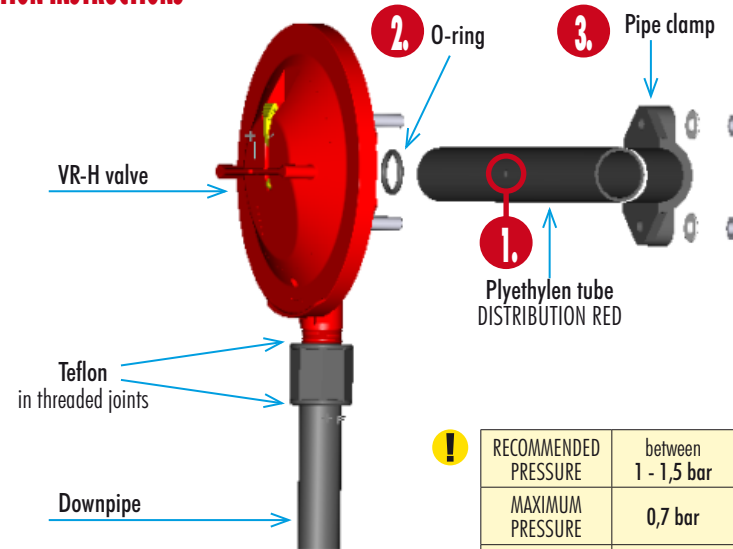




VR-H ASSEMBLY

- INSTRUCTIONS
- RECOMMENDATIONS

INSTALLATION INSTRUCTIONS



!	RECOMMENDED PRESSURE	between 1 - 1,5 bar
	MAXIMUM PRESSURE	0,7 bar
	MINIMUM PRESSURE	3 bar

1.

Drill a Ø10mm hole in the Ø1" tube of polythene.

2.

Place the O-ring in the housing as shown in the chart.

3.

Connect the valve to the Ø1" tube by means of the pipe clamp, washers and nuts provided.

RECOMMENDATIONS FOR THE INSTALLATION

1.

The tube should be minimum 1,2 m long to provide for the correct functioning of the valve.

2.

Choose a bracket according to the type of the mounting bracket. We recommend the Bracket.

3.

Use Teflon stripe (wrapping it up min. 15 times) in the installation of sockets to create the vacuum effect.

4.

Cut the inner plastic tube ± 15 cm shorter in relation to the end of the stainless steel tube.



We recommend that the tube should be at least at 5 cm distance separated from the walls of the feeder and so far as possible from the feed drop.

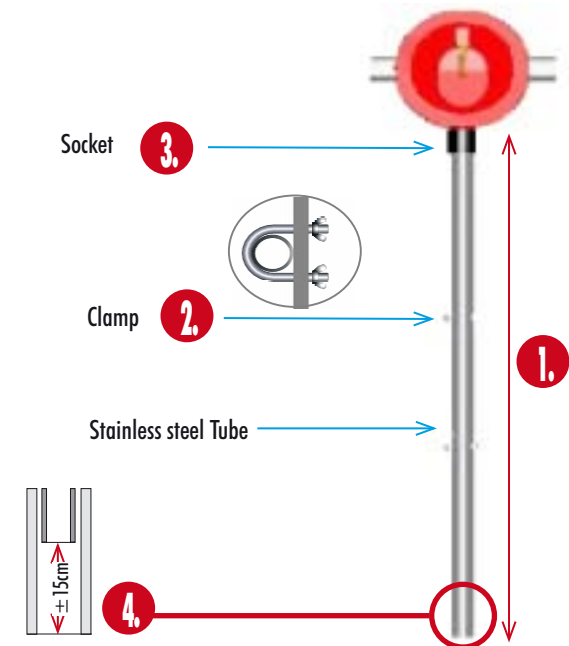




FIGURE OUT AND SOLVE PROBLEMS

FIGURE OUT AND SOLVE PROBLEMS

Figure out if the problem is with the valve and/or with the installation.

This is the first step to take if there is a problem with the water distribution for the animals.

If one valve malfunctions but the rest works correctly:
Obviously, the problem is localised (follow the steps below).

Various valves malfunction continuously or even intermittently:
Close all the valves and leave only one or two of the ones that malfunction working.

The majority or all the valves malfunction.

It is unlikely that all the valves have a problem from mounting or production defect.

The working conditions for the VR-H valves are not correct. Check the working pressures, flows, etc..

If necessary, dismount a valve together with its downpipe and connect it to a place in the water network where you are sure there is a minimum of flow and pressure available.

Try to fill the recipient:



They still fail.
The problem may be restricted to these valves (follow the steps below).

Now they work well.

The installation may not be dimensioned correctly for the simultaneous working of all (or the majority) of the valves.

Increase the diameter of the distribution pipes (larger diameter in the inlet, decreasing in each branch close to the valves and with a smaller number of valves on each branch).

If the VR-H does not close correctly, there is a problem with the valve (follow the steps below).

If the VR-H closes correctly when the water level reaches the bottom of the tube, the problem is in the installation.



- PROBLEMS WITH THE VALVES**
- Deficient sealing of the downpipe joints.
 - Fragments or dirt in the inlet pipe.
 - Blockage of the downpipe.
 - The end of the pipe rests on a wall at the back/bottom of the recipient. There is no "free" outlet.
 - Valve membrane damaged or badly installed.

- PROBLEMS IN THE DISTRIBUTION NETWORK**
- Insufficient pressure (causes):
 - Other points of consumption connected to the pipe.
 - Excessive demand for a single pipe.
 - Incorrect pressure measuring point.
 - Diameter of the pipe too small.



PROBLEMS WITH THE VALVES

PROBLEMS WITH THE VALVES

Sealing of the downpipe joints.

- Check that the installation is airtight from the inside of the valve to the lower end of the downpipe.
- The valve body must be well closed.
- All the threaded joints of the outlet pipe or the downpipe of the valve must be leakproof.
- Teflon should be wrapped a minimum of 15 times round the thread to ensure the joints are leakproof.
- The internal pressure is less than or equal to the exterior. Thus, a badly connected joint will not show any water leak. This makes it more difficult to detect the problem.

Fragments or dirt in the inlet pipe.

- This problem is more frequent in valves near the end of the line, for example, with a 1/2" adapter.
- Fragments of plastic may remain in the pipes especially when starting up new installations (after drilling the connections).
- It is advisable when starting up a new installation to carry out a thorough cleaning of the pipes by flushing them with water and draining it from the ends of the branches after all the connections and joints have been done.
- In the valves mounted directly on the main pipe (1"), the water flow carries the particles to the end of the pipe, where the flow and its carrying capacity diminish.
- It can be that the hole in the pipe may not be completely clean of its own fragments.

! *If the cover of a valve is opened and the water flow is switched on, the water jet that comes out of the central nozzle should reach several metres. If not, there is a lack of pressure, either through blockage or insufficient supply conditions.*

Blockage of the downpipe.

- This is the only case where water losses may appear at the joints between the components of the valve and the downpipe. The network pressure in the valve is higher than the outside atmospheric pressure.
- The inner pipe of the downpipe should not reach the lower end of the downpipe, but should remain some 200 mm above. Thus, the end of the pipe has a greater capacity thus being more difficult to block.
- Ensure the free flow of the water in the lower part of the pipe.

The end of the pipe rests on a wall at the back/bottom of the recipient. There is no "free" outlet.

- When the recipient is flat-bottomed, the valve discharge pipe may be in contact with the recipient.
- There is a possibility that the bottom end of the discharge pipe may become blocked if the area around it is not free. The remains of feed will accumulate here until they block the pipe.
- On the other hand, the closing of the valve when the water level reaches the bottom of the pipe will be less effective. This can cause that the level where the valve closes may be higher than the end of the pipe.

Valve membrane damaged or badly installed.

- After a long working time or long spells with the valve trigger actuated (valve closed position), the central part of the membrane becomes marked by the metal nozzle. In this case, if the valve does not close correctly, try turning the membrane.
- The membrane is reversible and, if it is not damaged, it can work on either face.
- Open and close the valves with the special key. Ensure that they are closed hermetically.
- If this does not work and/or the membrane is marked in the central projection, change it.



PROBLEMS IN THE DISTRIBUTION NETWORK

PROBLEMS IN THE DISTRIBUTION NETWORK

The flow and pressure are closely linked but the two aspects must be considered independently.

Enough pressure with most of the valves closed does not guarantee the good working of the installation.

The supply of water when "all" the valves are working must be high enough to avoid a pressure drop in the line.

Insufficient pressure.

Other points of consumption connected to the pipe.

- If there are other elements that consume water connected to the same installation, disconnect these to check the working of the VR-H.
- External consumption, by elements such as cleaning equipment, can cause an important pressure drop in the line.

Excessive demand for a single pipe.

- Too many valves on a single pipe may lead to the flow/pressure that a pipe of this diameter can supply being insufficient.
- When the majority of valves are working simultaneously, the water they use is greater than the flow the pipe can handle. The pressure in the distribution pipe will drop.

Incorrect pressure measuring point.

- If you have problems, you should read the pressure at the most unfavourable point of the network.

- Having enough pressure at the pressure equipment outlet or at the inlet into the farm does not guarantee that there is enough pressure at the end of the pipe.
- Remove the front cover of the valve to see the strength of the jet of water (see "Fragments or dirt in the inlet pipe" above).

! *In general, on a farm, there tends to be pressure variations due to the variation in the consumption of water (cleaning water for example). Due to this it is recommendable that the line supplying water to the valves be a line that is exclusive for the valves and independent from other water consumption points and, therefore, we recommend that this line have a tank and a pressure group available with the aim of insuring constant flow and pressure that is necessary for good valve operation. This is even more important when several VRHs are connected on one same span.*

Diameter of the pipe too small.

- If the diameter of the pipe is too small for the water for all the valves, much more pressure will be needed to make the valves work under the necessary conditions. The first stretch of the tube could even have to be above the maximum working pressure for the valves.
- You are recommended to divide the water installation into sectors with tanks and pumps as needed.

! *It is important to ensure that all the components on the line have the right diameter and that there are no bottlenecks, such as the installation of a pump or regulator with a bigger pipe diameter.*



DIAGRAM OF PARTS

NUMBER	CODE	DESCRIPTION	UNITS
1	12600030	VRH Key	1
2	GATILLOVRH	VRH Trigger	1
3 A	1160001P	Lid with thermography VRH A. Rotecna	1
3 B	116000CU	VR-H Body Rotec ST	1
4	10900000	Membrana for Screw Valve	1
5	M0000228	Helical strip	1
6	TUBFLEXVHR	VRN Flexible Tube 7x10 mm	1
7	M3412001	Socket 3/4 Ø - 1/2 F-F	1
8	TORICAVRH	VRH O-ring 20x4 NBR	1
9	VRHOD05	VRH Line Adaptor 1/2" Ø	1
10	SEMICOLVRH	VRH Pipe Clamp	1
11	VOLANDM8IN	M8 stainless steel Washer 9021	2
12	FEMELLAM8I	M8 stainless steel Screw DIN 934	2

Option depending on the product.

