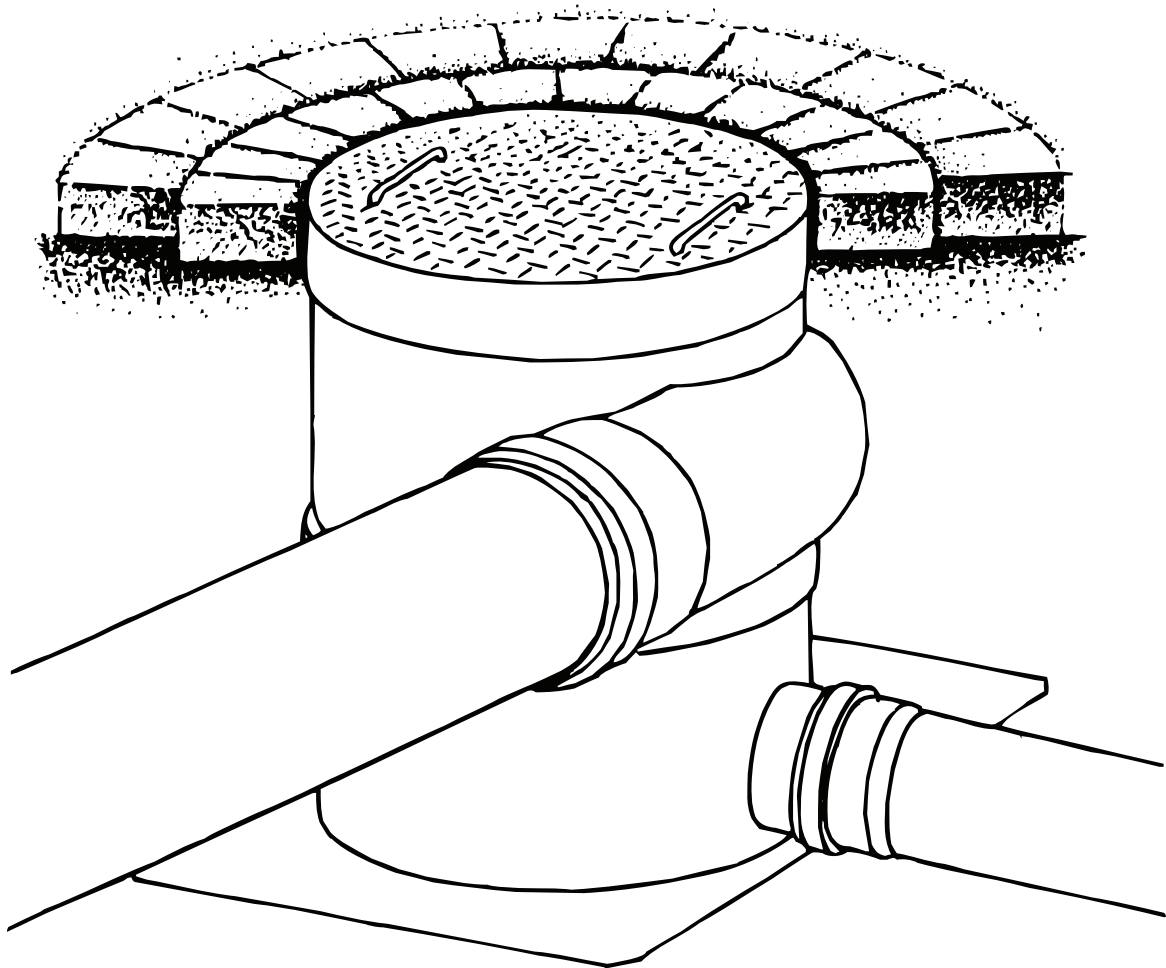


# **RAINWATER HARVESTING INSTALLATION GUIDE RH9521-12**

**High Capacity Vortex Rainwater Fine Filter  
for  
Above or Below Grade Application**





## **RH9521-12 Vortex Filter Operation and Maintenance Overview**

The RH9521-12 Vortex Filter harvests up to 95% of the rooftop rainwater runoff from a roof area up to 33,000 sq. ft. Particulate is separated and diverted from the rainwater through the vortex action to protect the harvested water quality prior to entering the storage tank (cistern). The Vortex Filter is used primarily for below ground installations where multiple downspouts are connected to a single trunk line. The RH9521-12 can be used for above ground applications and can be mounted with a custom-made stand or bracket, supplied by others. The trunk line feeds into the centrally located Vortex Filter.

- Particles larger than 380 microns are diverted into the storm drain.
- The full cross-section of the rainwater drainage system remains continuously open in the RH9521-12 system. There are no restrictions or obstructions in the filter on which debris can collect.
- The filter element develops its maximum efficiency when the filter mesh has been completely wetted. After a dry period, this can take up to 2 minutes. This first flush action diverts the entire initial flow of water into the storm drain. After the filter is completely saturated, filtered water will be delivered to the cistern.
- If necessary, (for deeper underground installation) an extension can be installed up to ground level (accessory).
- The rainwater inlet can be turned 360° in relation to the lower section. The central drain outlet is vertical so that pipes can be connected in any direction.

### **Installation**

Pre-planning is critical. It is recommended that the filter be in place before trunk lines are run and the tank is buried for below ground applications and prior to constructing a platform for above ground applications.



## Below Ground

Remove the steel or aluminum cover and the internal packing material. Prior to installing the filter, a 12" pipe will need to be buried with a 90° elbow to receive the discharge pipe at the bottom of the filter. This pipe will need to be installed to carry first flush water and debris to grade or to storm as applicable.

Place the stainless steel base over the elbow on a firm base of gravel or pre-poured concrete slab. The base plate should rest level on the concrete platform or compacted area with the end of the elbow visible through the round opening in the base plate. Make certain the base plate rests flat on the ground or concrete slab. If there are void areas, they must be filled in.

Insert the housing of the RH9521-12 into the open elbow through the opening in the stainless steel base plate. It is critical that the vertical pressure of the RH9521-12 housing is absorbed completely by the base plate. If any of the weight is not distributed properly, adjustments to the base plate will be necessary.

Rotate the rainwater inlet to the required direction to meet the incoming trunk line from the downspouts. Rotate the clean water outlet to the required direction to connect to the tank.

Remove the pipe inlet protector from the rainwater inlet on the filter by removing the rubber seal ring from the inlet bushing. Push the inlet protector out from the inside and replace the rubber seal ring in the inlet bushing. Make the connection from the trunk line to the filter using a minimum of 40" of horizontal 12" pipe to reduce the velocity of flow and calm the water to maximize efficiency. The 8" inlet pipe to the tank should be attached to the clean water outlet on the filter and the inlet of the tank using a minimum 1/8" fall per linear foot to ensure gravitational flow to the tank.

Once all connections are made and the filter has been checked to ensure it is level and plumb, backfill the filter using gravel or wet sand.

If the top of the filter housing is below grade, an extension can be added to the filter. The child protection plate must be removed from the ring and moved to the top ring once installed. The extension is then placed in the ring on the top of the filter and secured using stainless steel screws with washers and nuts. An additional top ring will be necessary to support the top of the extension and receive the child protection plate and lid. Once the exact length of the extension is determined, remove the excess.

Secure the intermediate ring to the top of the extension ring using stainless steel screw with washers and nuts and attach the child protection plate. The lid can then be placed on the filter and the remaining backfilling can take place.

**Note:** Please see the additional installation notes included at the end of this section.



## Above Ground

Remove the steel or aluminum cover and the internal packing material.

Create a level and stable platform above the storage tank for which the base plate of the filter can sit. It is important that the platform is designed to ensure the weight of the filter is absorbed by the base plate. *Do not hang filter or strap filter. Hanging or strapping the filter could change the shape of the filter and will reduce filter efficiency and cause filter to malfunction.* A safety rail should be constructed around the platform to provide a safe area to view and maintain the filter.

Connect and divert all downspouts to a 12" trunk line to the vortex filter rainwater inlet of the filter using the standard minimum of 1/8" fall per linear foot.

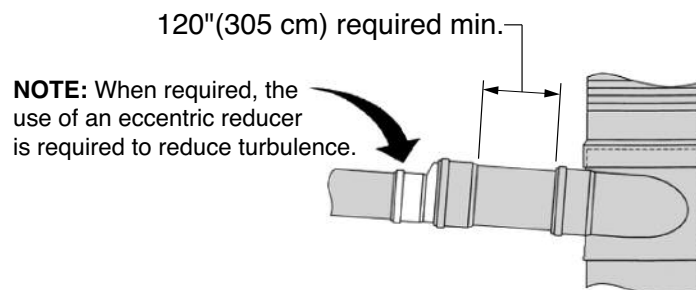
Remove the pipe inlet protector from the rainwater inlet on the filter by removing the rubber seal ring from the inlet bushing. Push the inlet protector out from the inside and replace the rubber seal ring in the inlet bushing. Make the connection from the trunk line to the filter using a minimum of 10' of horizontal 12" pipe to reduce the velocity of flow and calm the water to maximize efficiency. The 8" inlet pipe to the tank should be attached to the filtered water outlet on the filter and the inlet of the tank using a minimum 1/8" fall per linear foot to ensure gravitational flow to the tank. Connect a 12" pipe to the bottom opening on the filter to carry the first flush water and debris to grade or storm as applicable.

Once all connections are made, be sure the filter has been installed level and plumb.

**Note:** Please see the additional installation notes included at the end of this section.

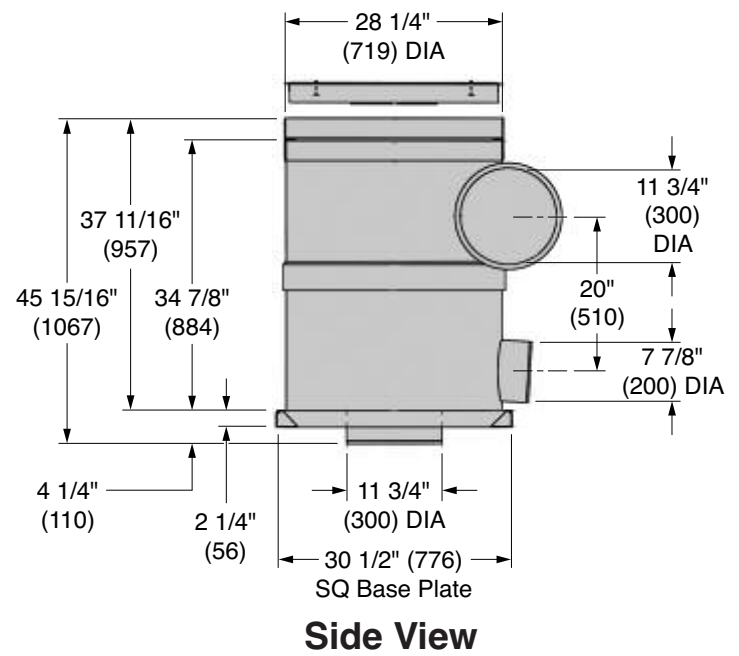
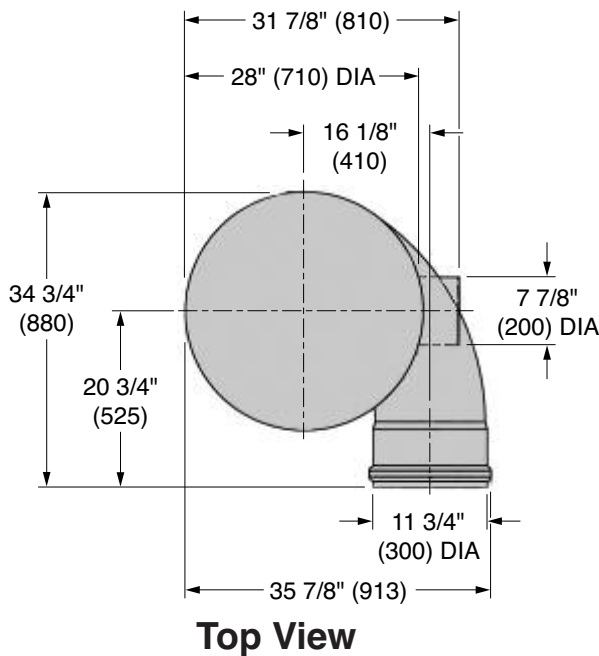
### Additional Installation Notes:

1. Ensure the lid is never obstructed or buried. Access is necessary for maintenance.
2. The vortex filter inlet and outlets rotate to fit installation needs.
3. Longer filter handles are available for deeper installations.
4. Adequate space (36") above filter lid must be allowed for filter removal.
5. When connecting a smaller inlet piping, an eccentric piping connector must be used to ensure connecting pipe's invert is level.





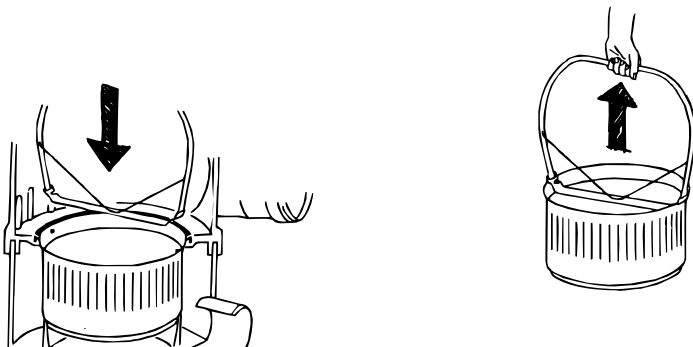
6. Be sure to contact your supplier before deviating from these instructions.
7. The filter should never be buried at a depth over 48". If the filter must be placed below ground deeper than 48", it will be necessary to place the filter in a vault. Placing the filter more than 48" below ground without a vault could compromise the structural integrity of the filter housing.



### Maintenance:

The housing of the RH9521-12 is maintenance-free. It consists of non-corrosive plastic. The filter mesh is virtually self-cleaning by the action of water flowing over the vertical mesh. Nevertheless, a thin film will build up on the mesh over a period of time. Usually this does not effect the efficiency of the appliance, but we recommend taking out the filter insert from time to time and spraying any openings that have become clogged from the inside with a strong jet of water (garden spray or high-pressure cleaner). Cleaning can also be carried out by hand using a small brush (not a wire brush) and normal dishwashing liquid.

### Removing The Filter:

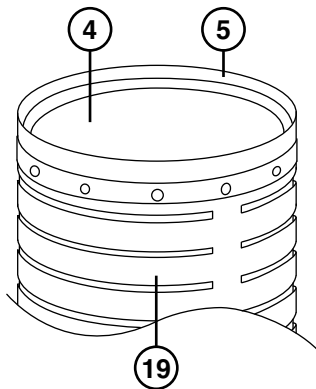


- Lower the filter handle onto the top of the filter, position the flat part under the lugs and lift the filter out.
- Do not leave the filter handle attached after use. It will impede the water flow and lower the efficiency of the filter.



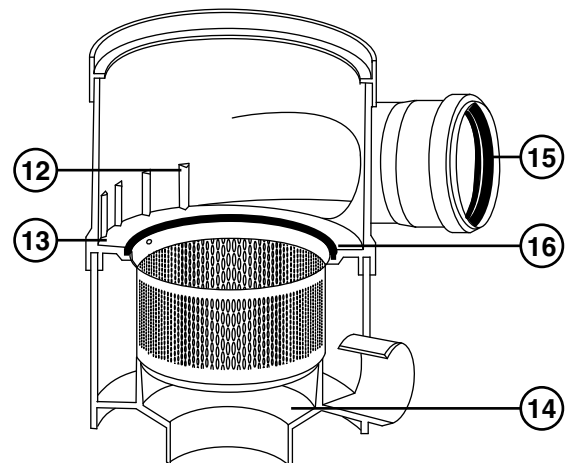
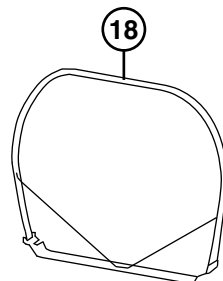
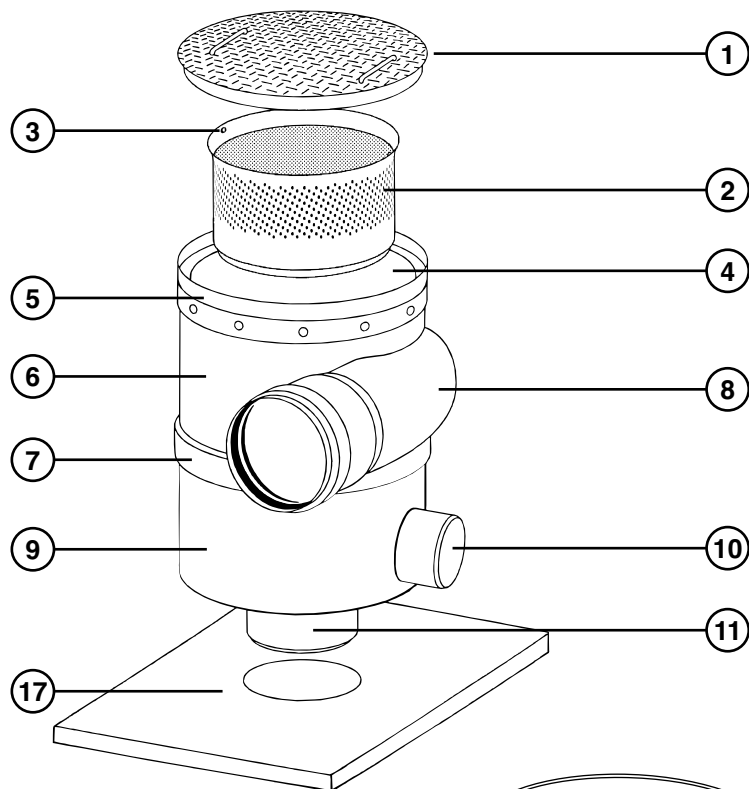
## Accessories:

Extension pipes are available for the installation of the RH9521-12. These raise the inspection opening to ground level. They are fitted onto the final ring, which then acts as an intermediate ring. The extension pipes are fitted with a final ring on one side to provide for the insertion of the manhole cover and make paving around the cover possible.



## Components:

- 1 Cover
- 2 Filter
- 3 Lifting Lug
- 4 Opening
- 5 Locating Ring for lid or extension tube
- 6 Upper Housing
- 7 Housing Ring
- 8 Rainwater Inlet
- 9 Lower Housing
- 10 Filtered water Outlet
- 11 Waste water Outlet
- 12 Deflecting ribs
- 13 Stream in level
- 14 Clean water collection ring
- 15 Inlet seal
- 16 Filter element seal
- 17 Steel baseplate
- 18 Filter lifting handle
- 19 Extension tube (accessory)



## Damage in transit

Products are carefully checked before shipping, but the risk of damage during transport cannot be guaranteed.

- Check the goods for content and damage on receipt.
- Any damage is the responsibility of the carrier, register any claim with them immediately.
- Contact your supplier before returning any goods.



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