



## WFF 300 Vortex Filter Operation & Maintenance

### Overview

The Wisy WFF 300 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 WFF 300 Vortex Filter is used primarily for below ground installations where multiple

downspouts are connected to a single trunk line. The WFF 300 can be used for above ground applications and can be mounted with a custom-made bracket, not supplied by RMS. The trunk line feeds into to the centrally located Vortex Filter.

### **Components** (see page 3 for illustration)

Housing: polypropylene

Lid: *12 ton*: stainless steel

*60 ton*: stainless steel

*pedestrian*: aluminum

Filter insert: stainless steel 380 micron pore size

Handle: stainless steel 20" standard

Child safety device: stainless steel

Connection ring: stainless steel

Base Plate: stainless steel

Extension (for below ground installation only): polypropylene (*sold separately*)

### **Installation**

Pre-planning is critical. It is recommended that the filter is 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.

#### **Above Ground:**

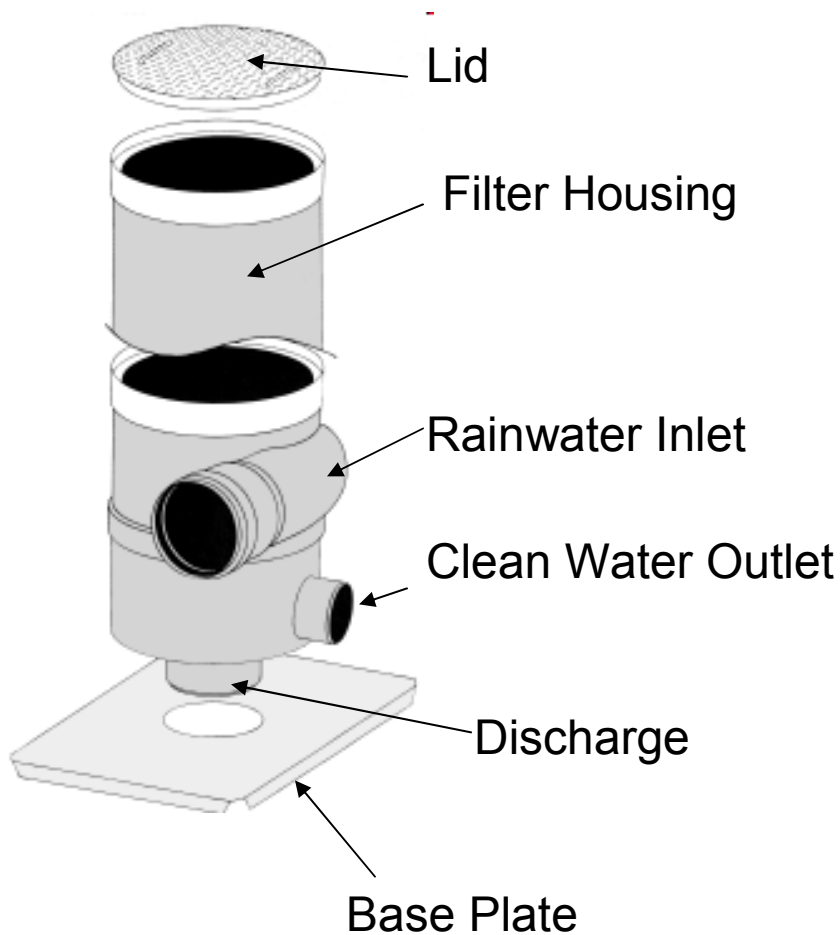
Remove the steel or aluminum cover and remove the internal package materials.

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 bung from the rainwater inlet on the filter by removing the rubber seal ring from the inlet bushing. Push the bung 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 flat 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 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. 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.





1260 West Riverside Dr.  
Salem, VA 24153  
1-866-653-8337

[www.rainwatermanagement.com](http://www.rainwatermanagement.com)

---

### **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 degree 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-pored 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 is rests flat on the ground or concrete slab. If there are void areas, they must be filled in.

Insert the housing of the WFF300 into the open elbow through the opening in the stainless steel base plate. It is critical that the vertical pressure of the WFF300 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 bung from the rainwater inlet on the filter by removing the rubber seal ring from the inlet bushing. Push the bung 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 flat 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 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.

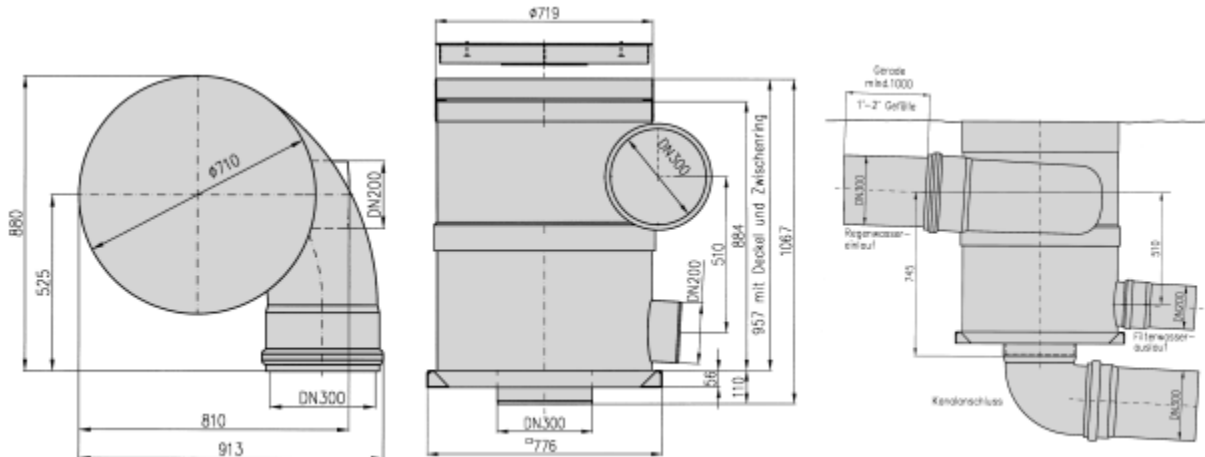
Secure the intermediate ring to the top of the extension ring using stainless steel screw with washers and nuts and attach the child protection plate. The lid can then be placed on the filter and the remaining backfilling can take place.

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.

*Note: ensure lid is never obstructed or buried. Access is necessary for maintenance.*

*Note: vortex filter inlet and outlets rotate to fit installation needs.*

*Notes: longer filter handles are available from RMS for deeper installations.*



**Inside Installation:** Inside warm rooms, **condensation** from moist air may appear on the surfaces of the WFF. Insulate these parts against condensation or provide a safe method for drainage of the condensation.

In some installations, extremely heavy rainfall may cause some rainwater to whirl upwards against the WFF lid and splash out. **To prevent this, the WISY-extension tube should be installed and sealed watertight.** If space above the vortex filters is limited, the air-holes in the lid should be sealed water-tight and the lid itself should be mounted with a waterproofed sealing and should be fixed with sideward screws to the housing of the WFF.

**Safety Tips for Inside Installation:** The following **safety tips** should be considered for the installation of the large capacity vortex filter (WFF300, Jay R Smith RH9521-12) inside buildings.

The **maximum rainwater flow rate** into the WFF 300 must not be greater than 1,268 gpm (2.83 cfs). The maximum collection area that can be directed to the filter must be calculated based on local rainfall data and the design requirements for the roof drainage system.

The system must be designed to prevent water from backing up into the vortex filter. If the outlet of the rinsing water from the vortex filter (the lower outlet pipe) is connected to a sewage system, the vortex filter must be installed above the **maximum water level** of the sewer. If the outlet of the rinsing water of the vortex filter is connected to an infiltration system, the vortex filter must be installed above the **maximum water level** of the infiltration system. If a backflow prevention device is installed downstream of the vortex filter, an overflow must be provided

between the vortex filter and the backflow prevention device to prevent a backup of water into the vortex filter.

The WFF should be installed *exactly vertical and securely*. Mounting the WFF 300 with the base plate on a stable heavy duty base is recommended. If other parts are used to mount the vortex filter, clamps, which surround the WFF-housing, must be installed free of tension and must not distort the WFF-housing.

Straight pipe with a minimum length of 3 m (9' 10") must be installed upstream of the filter inlet. This section of pipe is a '*settling length*' and serves to calm down the incoming water. The nominal size and the slope of this straight pipe must match the nominal size and slope of the WFF-rainwater inlet.

All *pipe connections* to the WFF must be watertight. After installation, the water-tightness of the connections should be tested with maximum water flow. Because the entering rainwater can cause impulses of mechanical stress on the connections, the pipe connections have to be protected from slipping (e.g. by clamps). In addition, the filtered water outlet (8") should have a 90 degree pipe bend installed to create a vertical drop adjacent to the filter.

## Maintenance

Inspect stainless steel filter insert every six months. If needed, remove filter with included handle and wash with a garden hose or in a dishwasher. The stainless steel filter insert will never need replacing, if maintained as directed. Longer lifting handles can be purchased for removing the filter insert if additional extensions are used.

