Vortex Filters

Vortex Filters are high-rate mechanical filters designed to extract organic debris and particulates from either rooftop or surface rainwater. They can be installed underground using an extension that can be cut to match a range of pipe inverts, or they can be installed above ground without the extension. Rainwater enters through the top port, circles the interior, and falls down the interior surface of a cylindrical filter element. Clean water is drawn through the filter element by capillarity and exits through the middle port. Waste drops through the open bottom of the filter element and exits through the bottom port.

Three models are available: *Vortex-100* for roofs up to 2.500 square feet, *Vortex-150* for roofs up to 5,000 square feet, and *Vortex-300* for roofs up to 30,000 square feet. The maximum roof area per filter should be reduced 50% for seasonally dry climates with intense rainfall.

Vortex filters can provide 85%+ recovery efficiency when installed perfectly plumb. They are mostly self-cleaning and require only occasional manual cleaning unless pollen levels are consistently high.
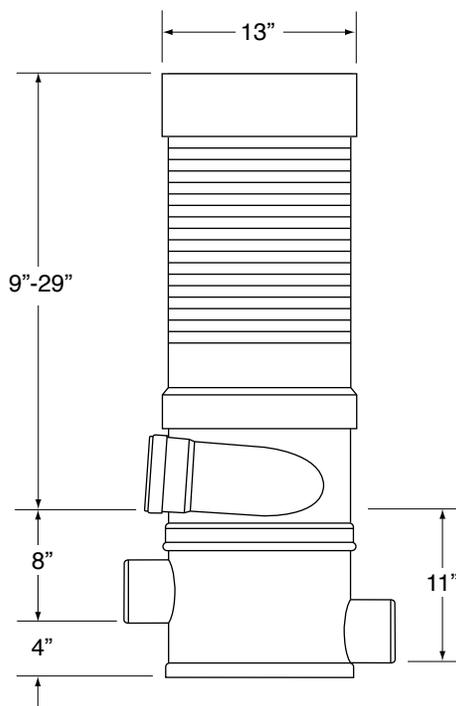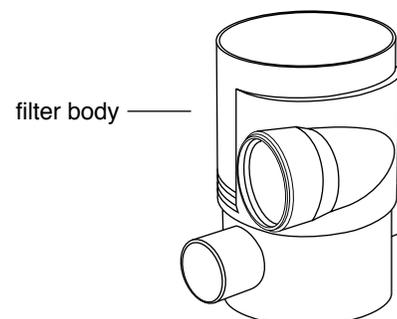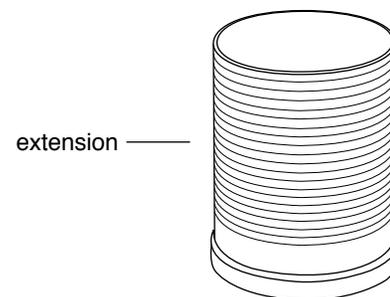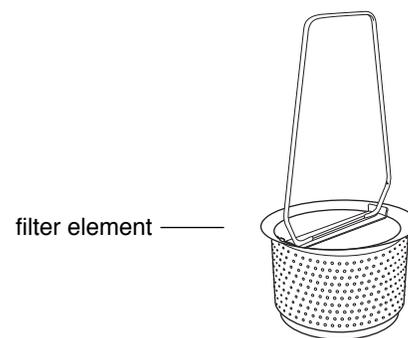
Vortex-100

Vortex-150

Vortex-300

PHYSICAL CHARACTERISTICS

Model	Inlet	Outlet	Waste	Invert-Inlet	Invert-Outlet	Invert-Waste	Max Area
Vortex-100	4"	4"	4"	9" -29"	17" - 37"	20" - 40"	2500 ft²
Vortex-150	6"	4"	6"	11" - 31"	23" - 33"	31" - 51"	5000 ft²
Vortex-300	12"	8"	12"	20" - 75"	38" - 93"	32" - 48"	30000 ft²

lid

filter element

collar

extension

filter body

VORTEX-100: The Vortex-100 filter body consists of an upper section with a rainwater inlet and a lower section with both a clean water outlet and a waste outlet located on opposite sides. The two sections can be rotated independently. The inlet is a 100mm gasketed socket that accepts 4" SDR sewer pipe; the outlet and waste are 100mm spigots that can be connected to 4" pipe using 4" flexible couplings.
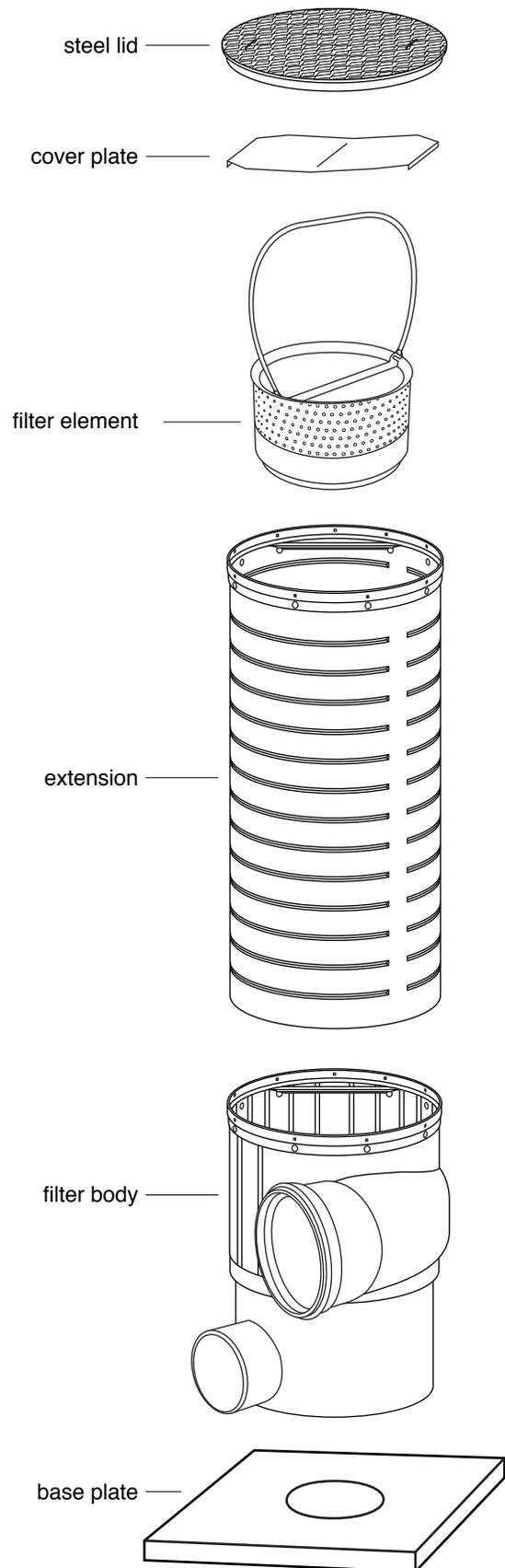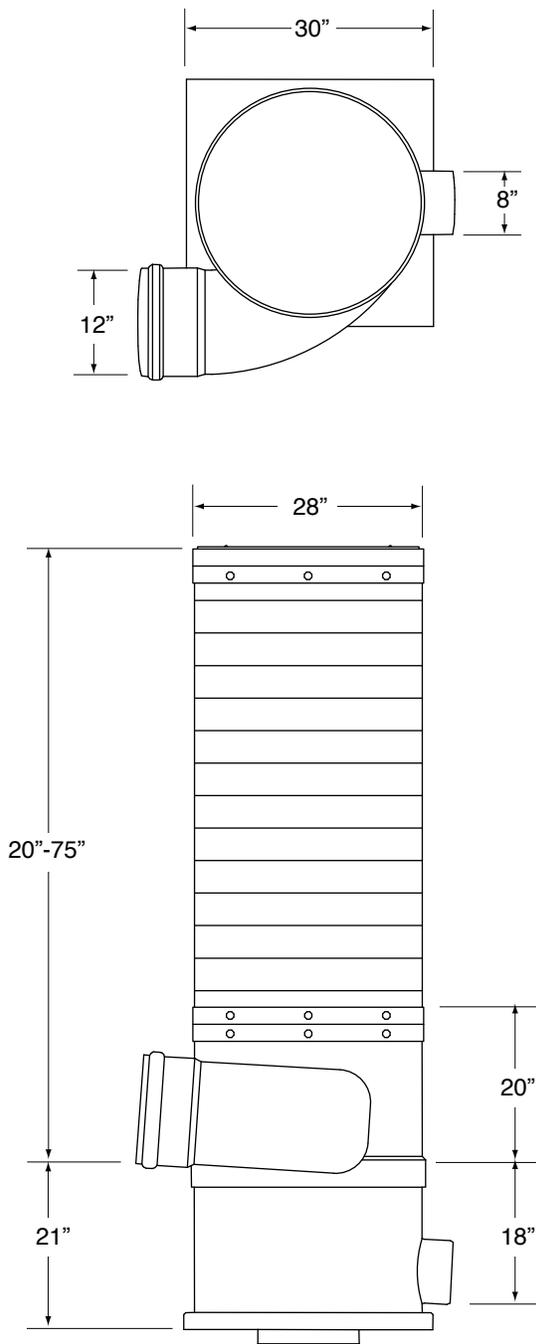
13"

9"-29"

8"

4"

11"

lid

VORTEX-150: The Vortex-150 filter body consists of an upper section with a rainwater inlet, a middle section with a clean water outlet, and a lower section with a waste outlet. All three sections can be rotated independently. The inlet is a 150mm gasketed socket that accepts 6" SDR pipe; the clean water outlet is a 100mm spigot that can be connected to a 4" pipe using a 4" flexible coupling, and the waste outlet is a 150mm spigot that can be connected to 6" pipe using a 6" flexible coupling.

filter element

collar

13"

11"-31"

extension

12"

20"

8"
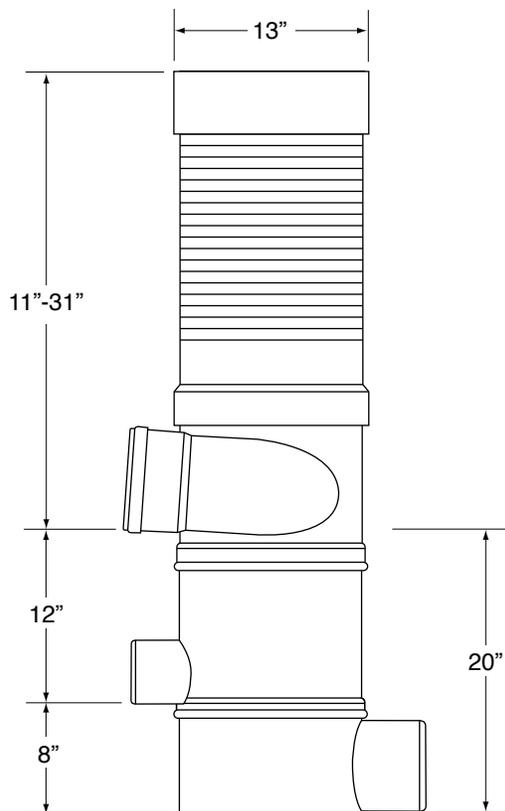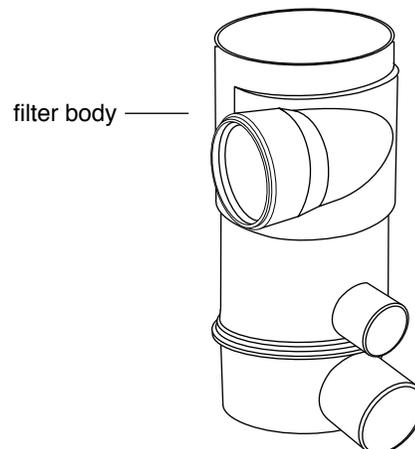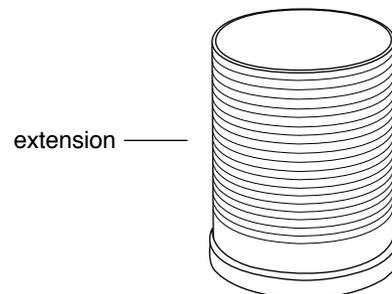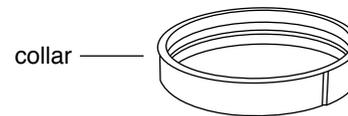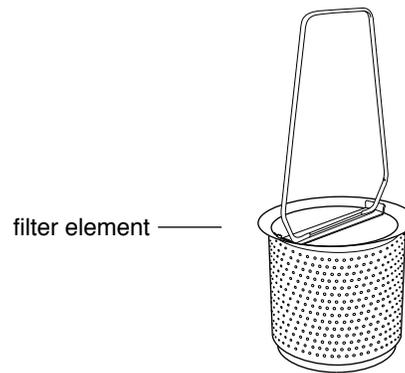
filter body

VORTEX-300: The Vortex-300 filter body consists of an upper section with a rainwater inlet and a lower section with a clean water outlet at the side and a waste outlet at the bottom. Both sections can be rotated independently. The inlet is a 300mm gasketed socket that accepts 12" SDR pipe; the clean water outlet is a 200mm spigot that can be connected to 8" pipe using an 8" flexible coupling, and the waste outlet is a 300mm spigot that can be connected to a 12" pipe using a 12" flexible coupling.

steel lid

cover plate

filter element

extension

filter body

base plate

30"

8"

12"

28"

20"-75"

20"

21"

18"

OPERATION

The illustration shows the operation of the Vortex-150, but operation of the Vortex-100 and Vortex-300 is similar. Rainwater enters through the top port, circles the interior, and falls down the interior surface of a cylindrical filter element. Clean water is drawn through the filter element by capillarity and exits through the middle port. Waste drops through the open bottom of the filter element and exits through the bottom port If water cannot flow through the filtered water outlet because the tank is full or the flow rate exceeds the hydraulic capacity of the pipe, rainwater falls through the filter to the bottom port.
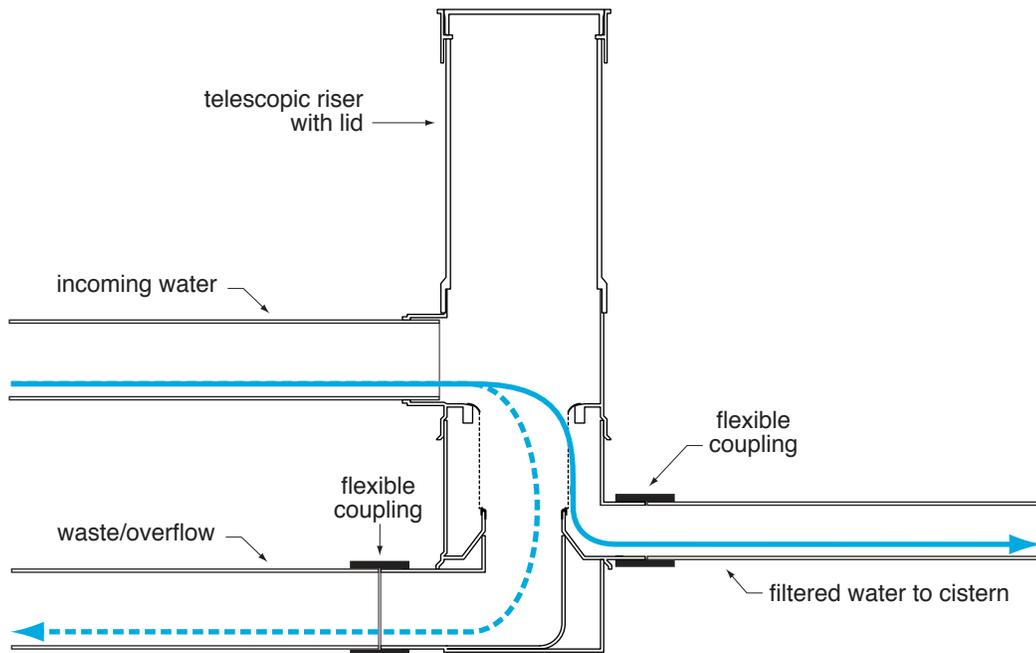
INSTALLATION

In this example, filtered water flows through the center outlet of a Vortex-100 filter and waste flows through the bottom outlet of the filter. When the water level within the tank reaches the height of the filtered inlet water pipe, any additional water entering the filter flows directly to the waste outlet.   This eliminates the need for a separate tank overflow.