

*Storm Water Sampler*

*by*

*Vortex*

## **BACKGROUND**

The Vortex Company has been a manufacturer of air cleaning devices since 1918. These are supplied as original equipment on internal combustion engines used in diesel trucks, automobiles and industrial applications.

The federal EPA, state, and local regulations have effected industry in many ways. In an effort to comply with mandated storm water permitting, which includes sampling, the Vortex Company explored several alternatives. It became apparent that a simple, low cost approach to collect samples was essential.

We then sought the valued opinion of several professionals in the engineering, chemistry and regulatory fields. As a result after many tests and design changes the Vortex Storm Water Sampler was developed and a patent was granted/issued.

Vortex philosophy in manufacturing is to design and build products with integrity and simplicity. This product follows in this tradition. We feel this may be the simple, low cost solution for which you are looking.

## **HOW IT WORKS!**

Prior to installing the sampler the (A) intake adjusting screw must be set to allow the appropriate intake liquid flow. Also, the (G) center port valve must be in the closed position. The (B) upper valve will stay in its closed position (keeping contaminants out of the sampler) until the liquid begins to fill the (C) sediment pan assembly causing the ball to rise. This then allows the liquid to enter the (F) collection chamber. As the (F) collection chamber fills, the (E) lower ball valve rises and once full, causes it to close and preserve the sample. (Note: If only a partial sample is collected the (A) upper ball valves returns to its closed position, thus preserving the sample.)

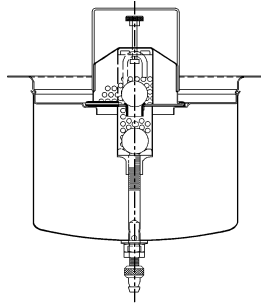
At the earliest appropriate time the sampler is retrieved and the liquid sample is transferred to an appropriate lab bottle. This is accomplished by using the (G) center port valve located on the bottom of the sampler. To minimize aeration of the sample a tube can be attached to the valve for transfer to the lab bottle.

Note: Refrigeration of the sample might be required. The Vortex sump assembly will accept ice. This will assist in chilling the sample to aid with its preservation.

## STORM WATER SAMPLER from VORTOX

— GRAB SAMPLES

— COMPOSITE SAMPLES



T All Stainless Steel

T Adjustable Intake Rate

T Teflon Lined (optional)

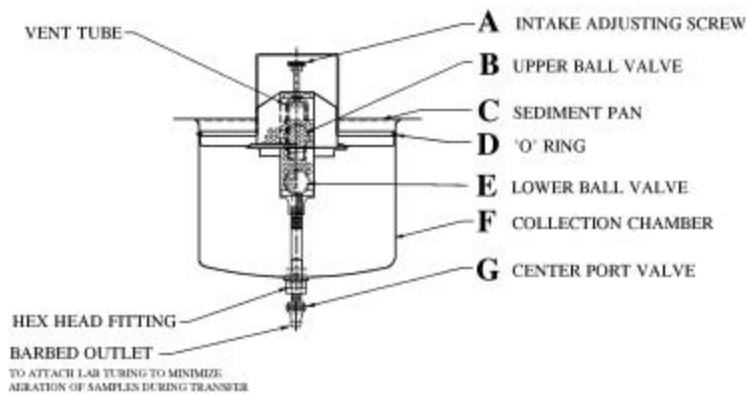
T Disassembles For Cleaning

T No Electrical Requirements

The primary design of this product is to capture grab samples and/or composite (time weighted, continuous collection) samples.

The Sampler comes in two sizes, .80 gallon and 5.50 gallon capacities. Both have an adjusting screw at the top of the ball valve for controlling the rate at which the liquid enters the Sampler. As the adjusting screw is turned downward the ball is restricted in its vertical lift and throttles the orifice opening. When the adjusting screw is adjusted down against the ball, the valve is held closed. For example, when the adjusting screw is opened (1/2) one half turn it will take clean water approximately 20 minutes (.80 gallon capacity, 1.0 inch head) to fill and shut off. When the adjusting screw is fully open (approximately 10 turns) the Sampler will fill in approximately 2 minutes. The adjusting screw is a precision machined screw with slight resistance so as not to slip from its selected position. Because the effluent is site specific some experimenting will be required to obtain the desired setting.

## STORM WATER SAMPLER ASSEMBLY



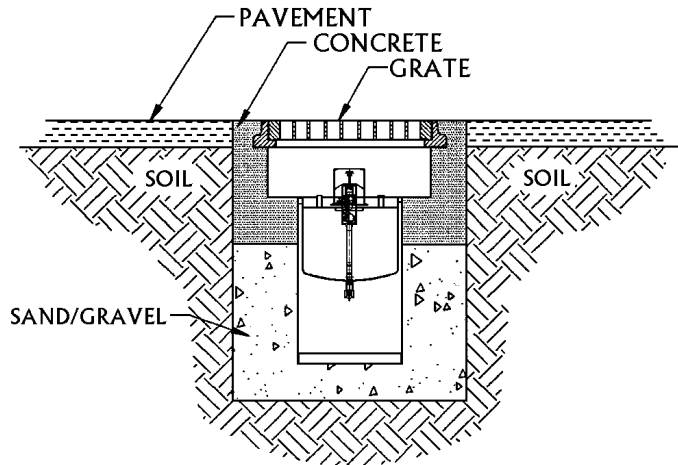
### TO CLEAN (most applications)

Use a wrench on the hex head fitting (located on the center port valve) to loosen and disengage the center port valve assembly from the ball valve assembly.

When disassembled, wash each of the (4) four components (ball valve assembly, center port valve assembly and the inner walls of the collection chamber and the sediment pan assembly) using a phosphate free detergent. Then rinse completely with deionized water and reassemble. Be sure to wash and reposition 'O' Ring in the groove located in the sediment pan.

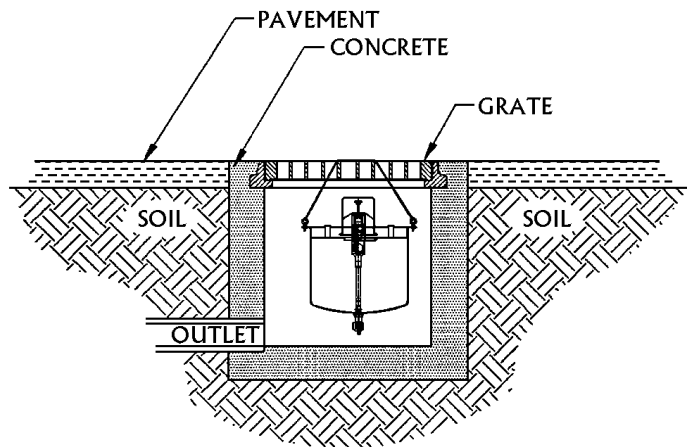
## TYPICAL INSTALLATIONS

Installation will vary in many cases. Actual locations of sample collection sites must be confirmed by the permitting agency.



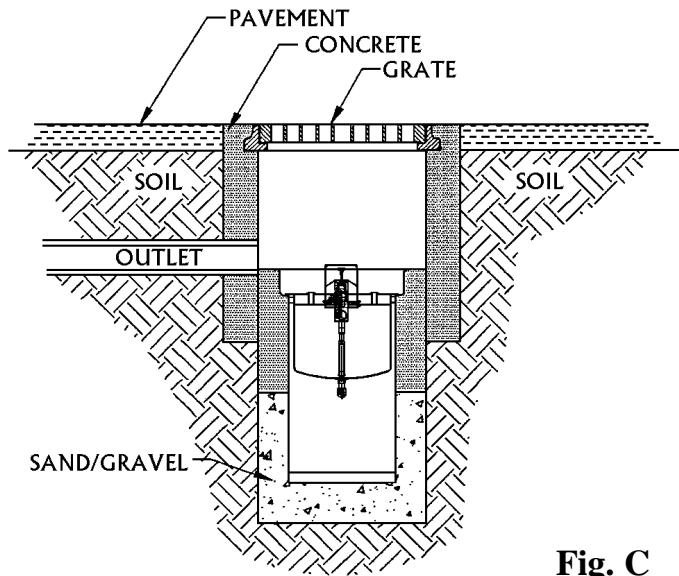
**Fig. A**

Sampler, Sump & Grate Set In Ground.



**Fig. B**

Sampler Suspended In Existing Sump  
With Optional Eye Bolts & Cables.  
(.80 Gallon Sampler Only)



**Fig. C**

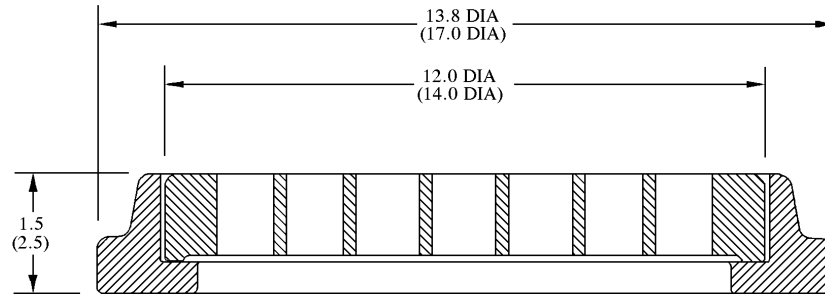
Sampler and Sump Installed In Core  
Drilled Bottom Of Existing Sump.

## OPTIONS & ACCESSORIES

**GRATE ASSEMBLIES** - Traffic rated FSG8A & (FSG10A) and non-traffic rated (FSG10B), cast iron, secured with Allen Head Screws.

**FSG8A** - Use with Sump Assembly FSS8A

**(FSG10A & FSG10B)** - Use with Sump Assembly FSS10.



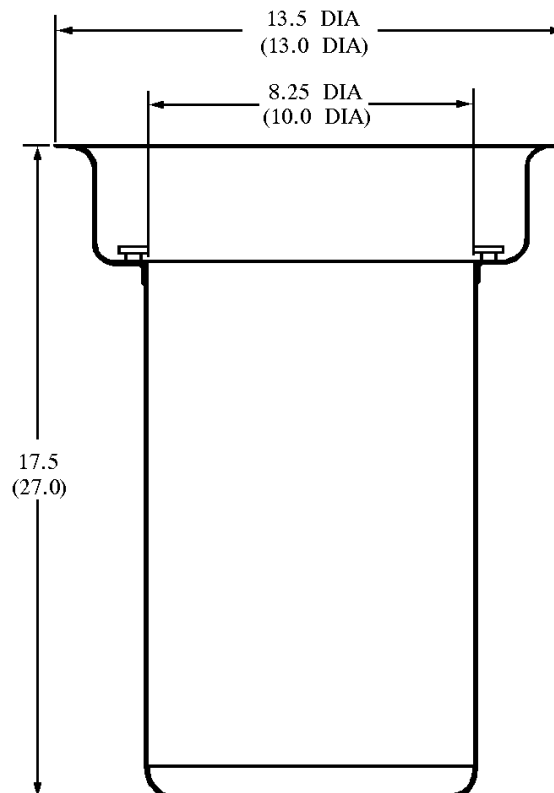
**SUMP ASSEMBLIES** - Stainless Steel completely sealed.

**FSS8A** - Use with Storm Water Samplers:

FS8A & FST8A

**(FSS10)**- Use with Storm Water Samplers:

FS10A & FST10A



**EYE BOLTS (4) & CABLES (2) - Stainless Steel**

**FSE18** - Used to suspend Storm Water Samplers:

FS8A & FST8A beneath existing grates.

[Reference figure 'B' page 6]

**SUMP ASSEMBLY LID/COVER** - Stainless Steel, aids in keeping sump free from debris (it is not water tight) when Sampler is not in place.

**FSL8** - Use with Sump Assembly FSS8A

**FSL10** - Use with Sump Assembly FSS10

**PLUG ASSEMBLY** - Water tight, mechanical plug, completely seals off sump assembly from unwanted debris and liquids that might otherwise enter the sump between collections of samples. "T" wrench included.

**FSP8** - Use with Sump Assembly FSS8A

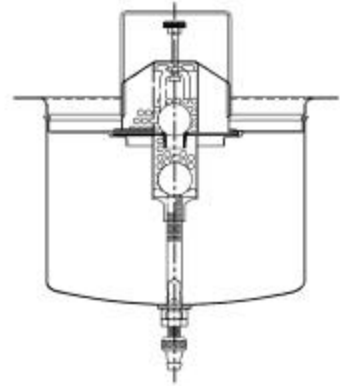
**FSP10** - Use with Sump Assembly FSS10

**TEFLON7 COATING** (Optional) - Applied to inner surface of sample collector and shaft portion of center port valve assembly. Teflon7 Coating is designated by the letter "T" as the third alpha character in the Sampler part number. (Example FST8A)

## VARIOUS CONFIGURATIONS

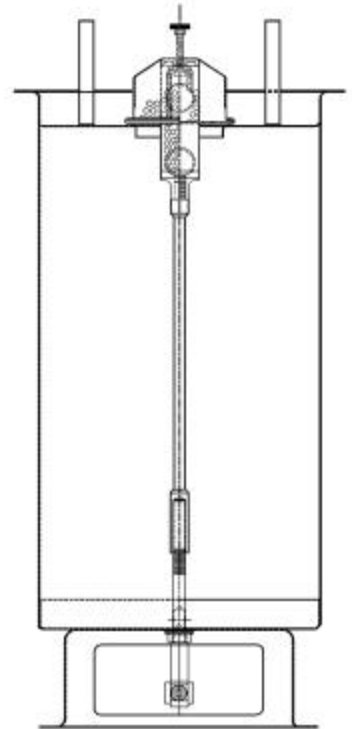
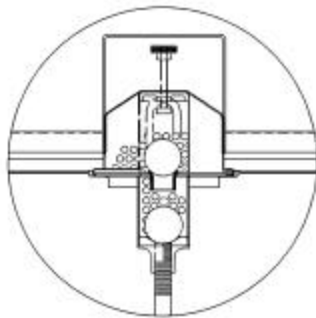
### **FS8A - STORM WATER SAMPLER** **FST8A - TEFLON7 LINED SAMPLER**

.80 gallon capacity  
All stainless steel construction  
Polypropylene ball valves  
Nitrile ball valve gasket



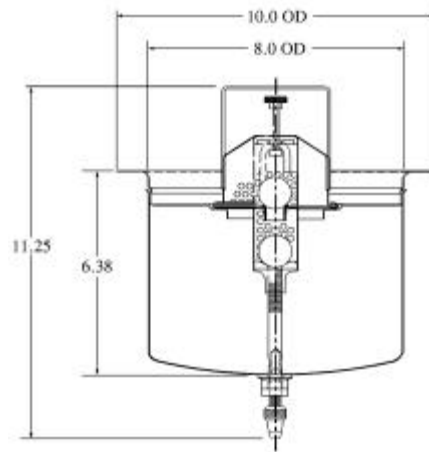
### **FS10A - STORM WATER SAMPLER** **FST10A - TEFLON7 LINED SAMPLER**

5.50 gallon capacity  
All stainless steel construction  
Polypropylene ball valves  
Nitrile ball valve gasket

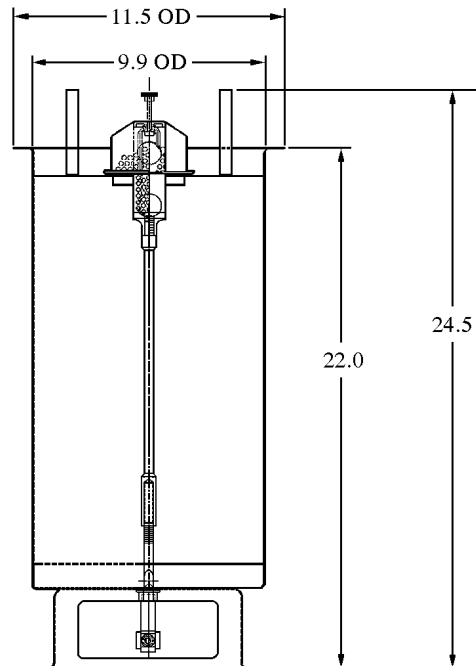


## SAMPLER DIMENSIONS

### FS8A & FST8A - STORM WATER SAMPLER



### FS10A & FST10A - STORM WATER SAMPLER



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