



# Kraken™ Filter

A Stormwater Filtration Solution

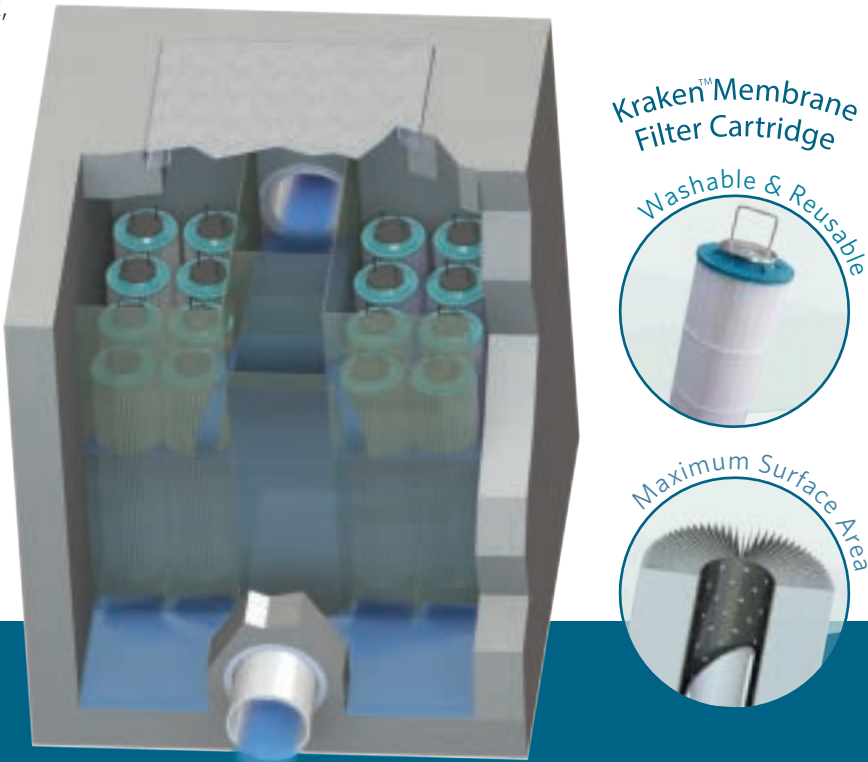


# OVERVIEW

The Bio Clean Kraken™ Filter is a state-of-the-art system utilizing advanced membrane filtration, ensuring a high level of removal for not only TSS, but also metals, trash, nutrients, and hydrocarbons. The Kraken™ membrane filter cartridge provides high flow rates and over 170 sq. ft. of surface area. This much surface area allows it to operate at a loading rate of only 0.05 gpm/sq. ft. to ensure maximum performance and minimum maintenance. The Kraken™ Filter’s low loading rate successfully overcomes high maintenance requirements and frequent clogging issues often found in other filter systems advertising high loading rates.

Each membrane filter cartridge is lightweight, washable, reusable, and more sustainable than typical granular-filled media cartridges. By eliminating the need to purchase new granular media and dispose of spent media, the Kraken™ Filter provides lower life cycle and maintenance costs.

Each filter cartridge is equipped with easy-to-grab handles and is pressure fitted, allowing it to be quickly removed, cleaned, and reattached without the use of tools.



## PERFORMANCE

**85-89%** REMOVAL OF TOTAL SUSPENDED SOLIDS (TSS)

**72%** REMOVAL OF PHOSPHORUS

## ADVANTAGES

- NO GRANULAR MEDIA TO REPLACE
- HIGH FLOW RATES AND MAXIMUM SURFACE AREA
- LOADING RATE OF 0.05 GPM / SQ. FT. FOR MINIMAL MAINTENANCE
- MEMBRANE FILTER CARTRIDGES CAN BE EASILY REMOVED AND CLEANED BY HAND
- BUILT-IN PRETREATMENT CHAMBER CAPTURES TRASH, SEDIMENTS, DEBRIS, AND HYDROCARBONS
- FILTER CARTRIDGE DRIES OUT BETWEEN STORM EVENTS TO PREVENT BIOFILM GROWTH WHICH CAN CAUSE CLOGGING AND OTHER PERFORMANCE ISSUES
- NJDEP ONLINE INSTALLATION APPROVED

# APPROVALS

The Kraken™ Filter has received NJCAT Verification for 89% TSS removal and NJDEP Certification at an 80% TSS removal rate. In addition, the Kraken™ Filter NJCAT Verification is also for online installations.



# TAPE PERFORMANCE

The Kraken™ Filter completed its TAPE field testing in the spring of 2016. The Kraken™ has met the performance benchmarks for basic treatment (TSS) and phosphorus. The system features washable and reusable cartridges to reduce overall maintenance costs.



POLLUTANT	AVERAGE INFLUENT CONCENTRATION (mg/L)	AVERAGE EFFLUENT CONCENTRATION (mg/L)	REMOVAL EFFICIENCY
Total Suspended Solids	73.1	7.0	85%
Total Phosphorus	0.151	0.034	72%
Suspended Solids Conc.	151.3	6.9	89%
Nitrogen (TKN)	1.5	1.0	31%
Fecal Coliform	692	355	60%
Motor Oil	4.6	0.7	81%
Total Zinc	0.158	0.054	54.3%
Total Copper	0.042	0.017	52%
Diesel Range Organics	1.2	0.4	65%

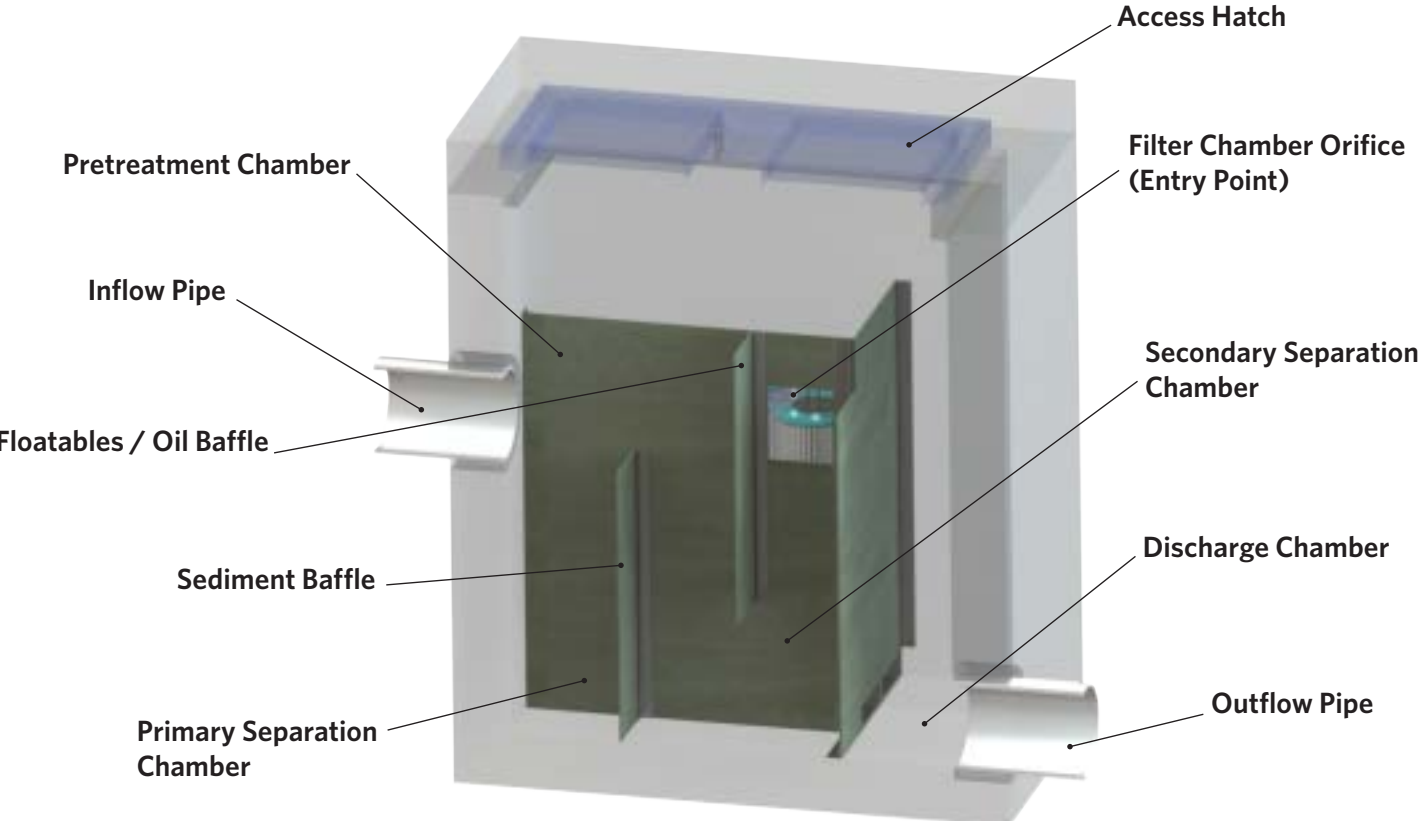
# SPECIFICATIONS

Based on Max Cartridge Capacity

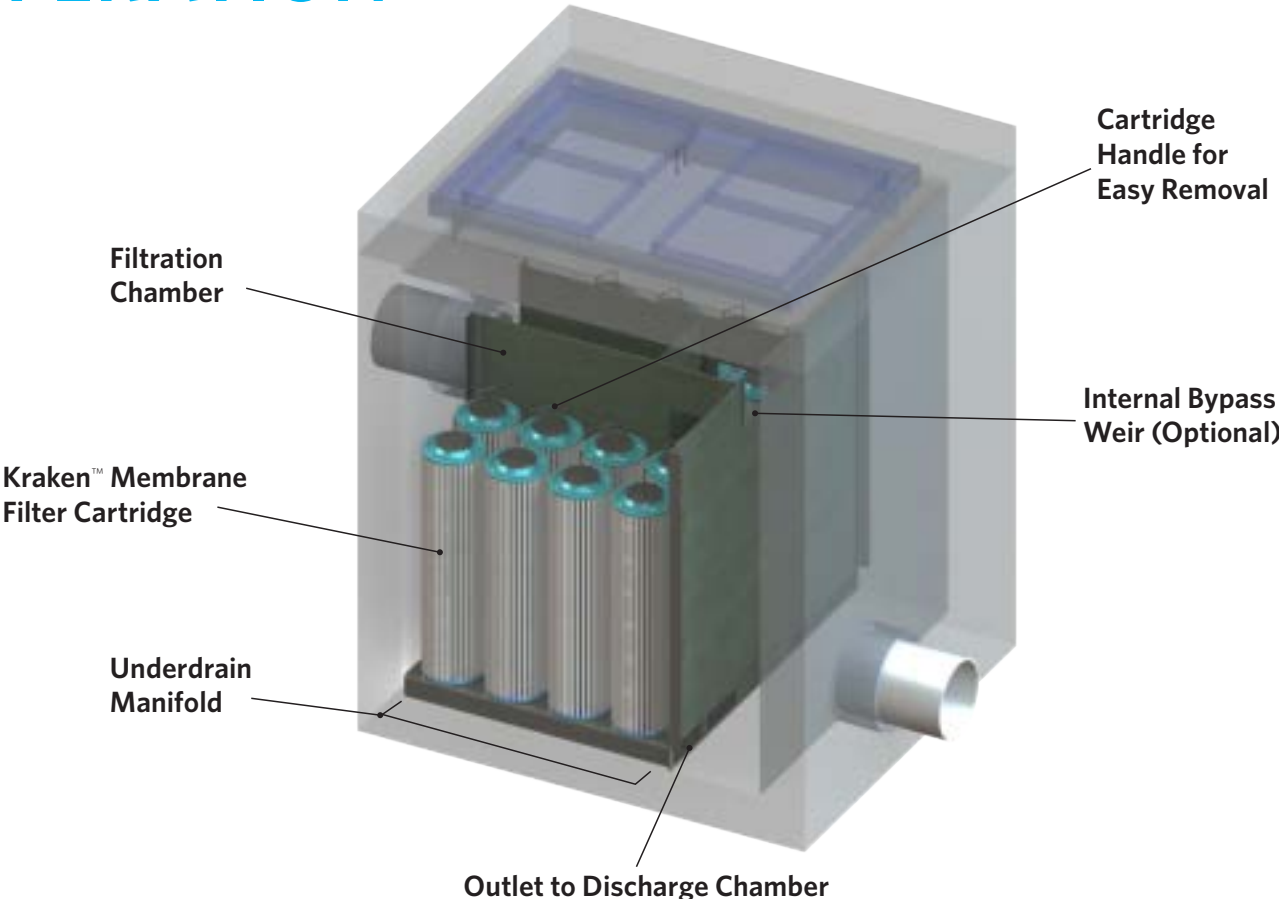
MODEL #	STRUCTURE SIZE (ft. x ft.)	CARTRIDGE CAPACITY	MAX MEDIA SURFACE AREA (sq. ft.)	TREATMENT FLOW CAPACITY (cfs)
KF-4-4	4' x 4'	9 to 16	2720	0.30
KF-4-6	4' x 6'	17 to 24	4080	0.46
KF-4-8	4' x 8'	25 to 32	5440	0.61
KF-8-8	8' x 8'	33 to 48	8160	0.91
KF-8-10	8' x 10'	49 to 65	11220	1.25
KF-8-12	8' x 12'	66 to 78	13260	1.48
KF-8-14	8' x 14'	79 to 96	16320	1.82
KF-8-16	8' x 16'	97 to 114	19380	2.16
KF-10-16	10' x 16'	115 to 152	25840	2.88

See design manual for list of all models. Many other models and structure sizes are available for higher flows. Please contact us for more details.

# OPERATION

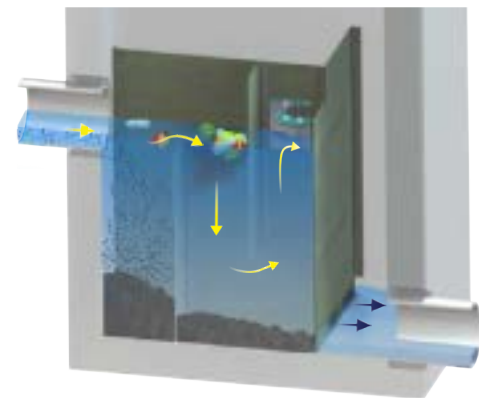


# OPERATION



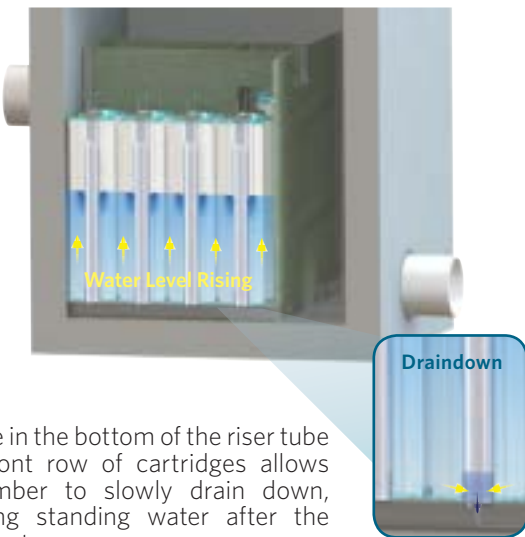
## 1 PRETREATMENT

To reduce loading on the membrane cartridge, runoff is initially passed through the pretreatment chamber to capture trash, hydrocarbons, and sediments. Once runoff is pretreated, it is directed to the filter chambers for primary treatment.



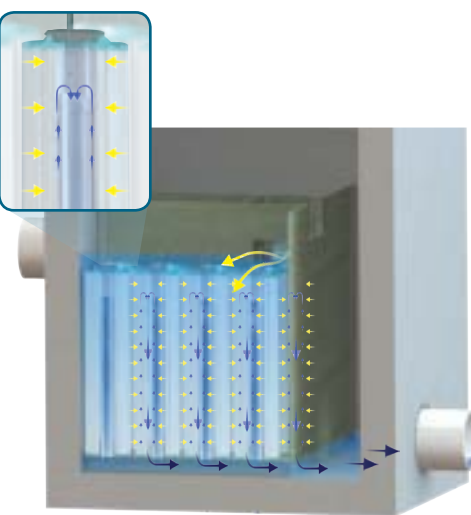
## 2 MEMBRANE FILTRATION FILL-UP

During the fill-up process, a riser tube prevents flow through the membrane cartridge until the water level nears the top of the cartridge. This ensures loading is evenly distributed over the vertical height of the cartridge maximizing efficiency.



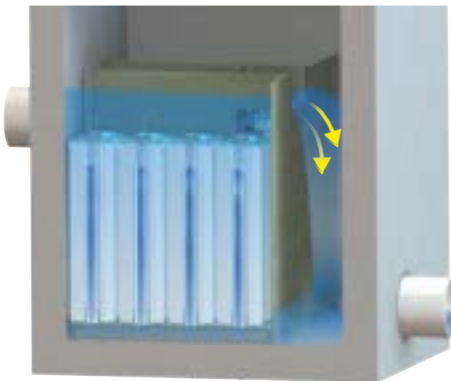
## 3 MEMBRANE FILTRATION PEAK CAPACITY

As the water level reaches the top of the membrane cartridges, flow through will begin. The riser tube creates an upward flow path within each cartridge to increase performance. Treated water then passes down the riser tube and collects in the underdrain manifold and flows to the discharge chamber.



## 4 BYPASS

An optional internal bypass is available with most system configurations. When flows exceed the treatment capacity of the system, the water level rises and goes into bypass. High flows are conveyed from the pretreatment chamber directly to the discharge chamber to prevent scouring of fine sediments captured within the filtration chamber.





# INSTALLATION



Small footprint reduces installation and shipping costs.

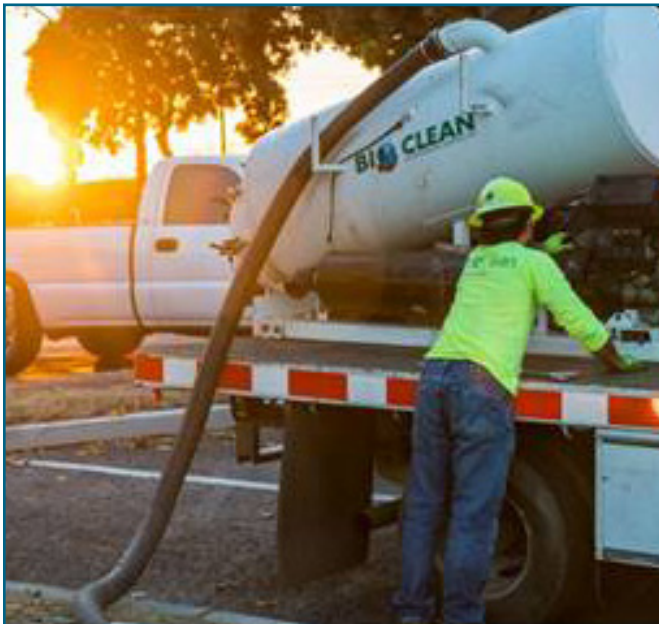


No deep sump chamber (as found with tentacle-type systems) and reduces excavation costs.

# MAINTENANCE



Lowest lifecycle cost of any media filter with fast and simple maintenance procedures.



Easily cleaned with a standard vacuum truck, and reusable cartridge can be cleaned with a standard garden hose.







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