

# Waterjet Filtration



Patent Applied For

***Ebbco inc.***  
**WATERJET FILTRATION**



## System Operation

Ebbco's Abrasive Removal System is designed to continuously remove exhausted abrasive/garnet that collects in a Water-Jet catch tank, thus eliminating downtime for cleanout and maximizes production. The Abrasive Removal System can be adapted to any abrasive Water-Jet Cutting machine.

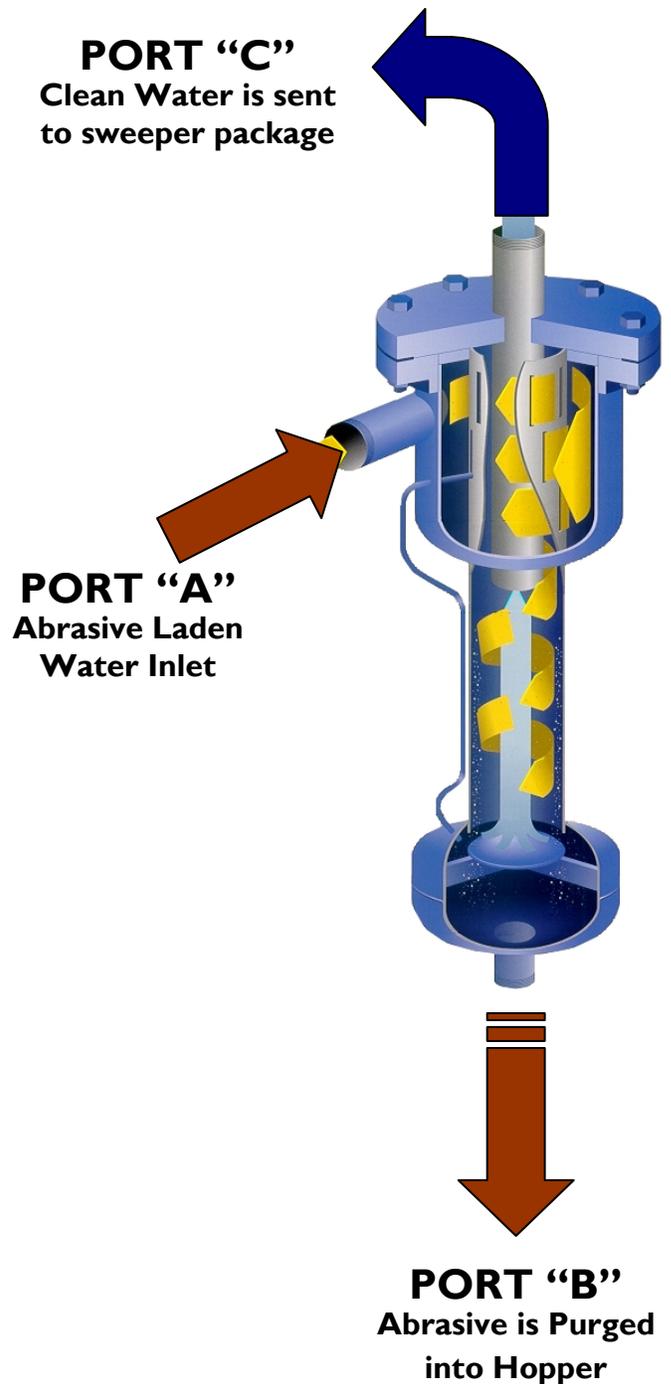
The heart of the system is the Heavy Duty Centrifugal Separator, (Shown at right)

High volume of Abrasive laden water is pumped through an offset inlet (PORT "A") that forces the water to rotate inside the separator. The rotating abrasive laden water is forced through internal acceleration slots, into a separation chamber, where the water rotation/speed increases dramatically. Through centrifugal force, the abrasive is forced to the outside of the separator, as the abrasive laden water rotates, it migrates downward to the expansion chamber at the lower end of the separator. Because the expansion chamber is larger than the separation chamber, the water must travel further to complete the rotation. Thus, centrifugal force is less and the abrasive quickly drops out of the water. The abrasive gathers at the bottom of the collection chamber. On a timed cycle, the abrasive concentration is purged through (PORT "B") into a hopper that contains the same bag in which the abrasive was purchased.

The now abrasive free water, naturally seeks the path of least resistance. (As in a natural low-pressure center in our atmosphere.) The clean water travels toward the center of the separator and through the exit (PORT "C") located at the top of the separator.

The discharged clean water is forced back into the Water-Jet catcher tank through a series of eductors, which make up a sweeper package.

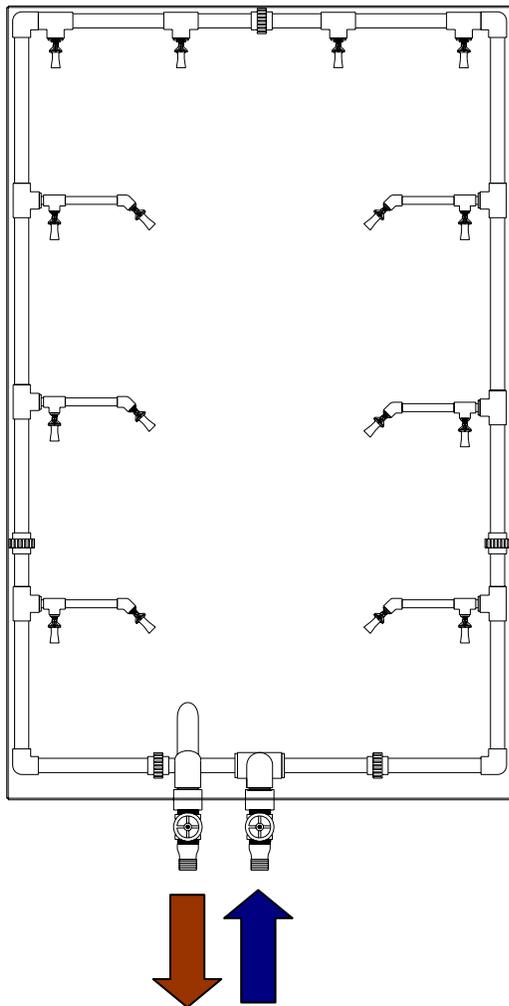
Internal to the catcher tank, the returned clean water drives this sweeper package. The sweeper package keeps the new deposits of abrasive suspended and moving toward the suction port, through a suction Strainer and back into the separator, where the process continues.



Operational Video:  
<https://youtu.be/fAPC4n5P-wc>

# System Specifications

Model Number	GRS-0150	GRS-0200	GRS-0250	GRS-0302	GRS-0303	GRS-0402	GRS-0502	GRS-0602
Tank Sq. Footage	0-20	21-30	31-40	41-70	71-100	101-170	171-250	251-350
Flow Rate (GPM)	70	100	150	200	290	450	600	770
Motor HP	5	7.5	10	10	15	20	30	40
Voltage	220/460	220/460	220/460	220/460	220/460	220/460	220/460	220/460
Full Load Amps	14.5/8.0	22.6/12.3	27/14.5	27/14.5	42/22	54/28	78/40	96/49
Suction Size	2"	3"	3"	3"	4"	4"	6"	6"
Discharge Size	1.5"	2"	2"	3"	3"	4"	6"	6"



**Ebbco Model No: GRS-0302-B-CC**

## **SYSTEM SELECTION**

Selection of an Ebbco Abrasive Removal System is based on square footage of the Water-Jet catcher tank and number of cutting heads. Catcher tanks are unique and may contain obstacles such as support stanchions and bladders. Ebbco engineers will design a sweeper package to fit any Water-Jet catcher tank. The sweeper package is designed to move large quantities of abrasive laden water along the bottom of the tank, toward a suction port. Before entering the separator, the abrasive laden water is pre-filtered through a suction strainer, which collects larger parts that accumulate during the cutting process.



### Sweeper Package Installation

A Sweeper Package is specifically designed to fit the catcher tank and can be installed by a qualified Ebbco service technician. The sweeper package incorporates multiple eductors with a 4:1 ratio. The eductors enhance water flow and keeps the abrasive in suspension, pushing it toward the system suction port.



### System Abrasive Purge

Abrasive is purged from the system every minute. As the Water-Jet deposits abrasive into the catcher tank, the Ebbco Abrasive Removal System removes it, depositing the spent abrasive into the same 2200 lb. bag that the abrasive was purchased in.



### Abrasive Disposal

Spent abrasive is deposited in the 2200 lb bag at the same rate at which it enters the catcher tank. The spent abrasive is relatively clean and void of parts larger than 1/8" diameter. The Spent abrasive bag is lifted from the disposal hopper and disposed of in a manageable 2200 lb bag.



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