Joe Johnson Equipment

ELGIN

Clean Air. Clean Water. Clean Streets.

Welcome from

Joe Johnson Equipment Inc
&
Elgin Sweeper Company

INTRODUCTION TO JOE JOHNSON EQUIPMENT

Clean Air. Clean Water. Clean Streets.

History

Est. 1988, Ontario (50,000 sq.ft)

Full Service Facilities:

Innisfil
Ottawa
Edmonton
Montreal
Halifax
Winnipeg
Cambridge
Calgary
Rochester NY
Albany NY

INTRODUCTION TO JOE JOHNSON EQUIPMENT

Clean Air. Clean Water. Clean Streets.

- Family-Owned
- 23 Years in Business
- 10 Branches
- 170 Employees
- 89 Factory-Trained Technicians
- Over $5M in Stock Parts
- Approximately 250 units in our rental and/or Maintenance Contract Fleet
- JJE is a Major Supporter of CPWA (APWA) SWANA, National & Provincial Chapters

About Elgin Sweeper

Clean Air. Clean Water. Clean Streets.

- Elgin sweepers have been cleaning roadways since 1914. It all began at the turn of the century with inventor John Murphy of Elgin, Illinois. Mr. Murphy recognized the serious health hazards caused by polluted streets and invented the world's first machine that automatically picked up street debris. This remarkable piece of equipment eliminated the need for a man with a shovel and helped solve the sanitation problems of the day.

- As times changed so did Elgin, and for over 97 years Elgin products have delivered superior performance in all kinds of sweeping conditions. Today, Elgin sweepers are used around the world and backed by the industry's most respected dealers, who provide quality sales, service, warranty and parts support.

- Elgin continues its sweeper leadership by evolving its products and creating new ones. Elgin pride themselves on the quality, innovation and reliability that is built into each and every product. Elgin equipment utilizes all variations of today's technology — to offer customers the sweeper that matches their needs. From general street maintenance to special industrial and airport applications. Elgin puts it's customers in the sweeper that best meets their needs

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Elgin – Air and Water

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Environmental Solutions

More strict and enforced Best Management Practices combined with EPA's storm water Phase II regulations are helping North America keep our watershed's clean. The Federal Signal Environmental Solutions Group manufactures sweeping and vacuuming equipment that help municipalities implement their Phase II Storm water goals.

Federal Signal Company own the following companies that provide various environmental solutions:

Elgin Sweeper street sweepers remove contaminants before they can enter storm drains. Some sweepers can be equipped with a catch basin cleaning hose for added versatility.

Vactor Manufacturing combination sewer cleaners and catch basin trucks clean sewer and storm drain lines, catch basins, vaults and traps. Vactor's vacuum excavators expose underground utilities or provide precise excavation work without mounds of silt-producing raw earth.

Guzzler air movers and industrial vacuum trucks remove contaminants from storm water retention ponds and industrial sites.

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ETV Canada Verified

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Environmental Technology Verification

ETV Canada Verified

Elgin Eagle Series FW Waterless Street Sweeper
Technology Fact Sheet for Elgin Sweeper Company

Performance Claim

The Elgin Eagle Series FW Waterless Street Sweeper is a truck-mounted mechanical street sweeper, which was operated by a vendor's representative at an average speed of 5.3 $km \cdot h^{-1}$ in a controlled space where no water or any other liquids were permitted. No water spray was used in the testing. The sweeper was operated with both side brooms (gutter brooms) and the main pick-up broom operating. In addition, the standard Waterless Eagle flexible dust skirts were in place during testing with the standard curb-side flaps set for curb sweeping with skirt flaps on both sides fastened in the elevated position to allow the side broom to engage directly with the curb.

The final average performance indicators – at the 95% confidence interval – of the Elgin Eagle Series FW Waterless Street Sweeper, are as follows:

1. Maximum concentration of PM_{10} air contamination of 0.005 ± 0.006 $mg \cdot m^{-3} \cdot kg^{-1}$;
2. Total concentration of PM_{10} air contamination of 2.63 ±0.72 $mg \cdot m^{-3} \cdot kg^{-1}$;
3. Maximum concentration of $PM_{2.5}$ air contamination of 0.002 ±0.002 $mg \cdot m^{-3} \cdot kg^{-1}$;
4. Total concentration of $PM_{2.5}$ air contamination of 1.44 ±0.28 $mg \cdot m^{-3} \cdot kg^{-1}$;
5. A removal efficiency of test material from surface of 88.1% ± 2.9%; and
6. Deposit of test material on sidewalk of 0.06% ± 0.09%

Technology Application

The Elgin Eagle Series FW sweeper can efficiently clean large paved areas like streets, highways, and construction sites. The Eagle FW provides variable height dump. Side brooms and a main broom help bring debris out of the gutter and onto a mechanical conveyor.

Performance Conditions

The Elgin Eagle Series FW Waterless Street Sweeper was tested at the Prairie Agricultural Machinery Institute (PAMI) facility (Test Agent, TA) in Humboldt, Saskatchewan over three test days in July of 2008. The test facility was an enclosed tent about 80m x 11m. The test material was Camel-Wite®, manufactured by Debro Chemicals and Pharmaceuticals, a calcium carbonate-based powder with a mean diameter of about three microns. A total of 272 ± 1 (at 95% confidence level) kg were applied to the test track, which consisted of two strips that were 2.75 m x 30 m each. The TA conducted the testing and measurement according to the "PM_{10} and $PM_{2.5}$ Street Sweeper Efficiency Test Protocol. Version 1" (City of Toronto, April 2008).

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Environmental Technology Verification

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Elgin Crosswind® NX Street Sweeper
Technology Fact Sheet for Elgin Sweeper Company

Performance Claim

The Elgin Crosswind® NX Street Sweeper is a truck-mounted regenerative-air street sweeper, which was operated by a Vendor's representative at an average speed of 5 km per hour in a controlled space where no water or any other liquids were permitted. The sweeper was operated with right-hand side broom (gutter broom) and the center broom operating. In addition, neither water spray nor gutter broom shrouds were used during testing.

The final average performance indicators – at the 95% confidence interval – of the Elgin Crosswind® NX Street Sweeper are as follows:

1. Maximum concentration of PM_{10} air contamination of 0.010 ± 0.002 $mg \cdot m^{-3} \cdot kg^{-1}$;
2. Total concentration of PM_{10} air contamination of 6.12 ±0.43 $mg \cdot m^{-3} \cdot kg^{-1}$;
3. Maximum concentration of $PM_{2.5}$ air contamination of 0.008 ±0.002 $mg \cdot m^{-3} \cdot kg^{-1}$;
4. Total concentration of $PM_{2.5}$ air contamination of 4.71 ±1.93 $mg \cdot m^{-3} \cdot kg^{-1}$;
5. A removal efficiency of test material from surface of 81.8% ± 3.6%; and
6. Deposit of test material on sidewalk of 0.03% ± 0.03%.

Technology Application

Elgin's Crosswind® recirculating vacuum sweeper efficiently cleans large flat paved areas such as streets, parking lots, and airport runways. Mounted on the short-wheelbase chassis of either conventional or cab-over chassis, the Crosswind® is operated by simple rocker switches and comes with a complete set of gauges. A combination of large hopper and water tank provides the sweeper with a long work period between trips to dumping, re-watering and fueling sites.

Performance Conditions

The Elgin Crosswind® NX Street Sweeper was tested at the Prairie Agricultural Machinery Institute (PAMI) facility (Test Agent, TA) in Humboldt, Saskatchewan over three test days in October of 2008. The test facility was an enclosed tent about 80m x 11m. The test material was Camel-Wite®, manufactured by Debro Chemicals and Pharmaceuticals, a calcium carbonate-based powder with a mean diameter of about three microns. A total of 271 ± 3 kg were applied to the test track, which consisted of two strips that were 2.75 m x 30 m each. The TA conducted the testing and measurement according to the "PM_{10} and $PM_{2.5}$ Street Sweeper Efficiency Test Protocol Version 1" (City of Toronto, April 2008).

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Historic Reasons For Sweeping

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- Approved as a Best Management Practice
- Improves general aesthetics
- Improves Air Quality by reducing potential airborne contaminants
- Improves Storm Water Quality by removing road surface contaminants
- Generally Improves Overall Public Health
- More cost effective to capture road debris on surface prior to it entering storm drain (catch basin / retention ponds etc)
- Provides a safer and increased longevity road surface
- Improves public's pride and ownership in their locale (less tendency to litter)

Porous Surfaces Introduce New Reasons For Cleaning

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- **Reasons to Maintain Permeability**
  - Reduction of storm water run-off and the associated results of erosion and flooding
  - Reduction of pollution to local water sheds by providing “natural filtration” of storm water
  - Frequent maintenance of surface is required to maintain intended infiltration levels
  - Use of this permeable pavement is being increasingly more common

Background –Sweepers

Clean Air. Clean Water. Clean Streets.

- Elgin manufactures 8 different sweeper models (as such we have competitors to all of these different designs)
- Vary in Size
- Vary in design form Mechanical broom, Regenerative Air and Pure Vacuum
- Each machine has distinct characteristics and associated customer bases which are <u>completely dependant on application</u>

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Mechanical Sweepers

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Pelican®

Eagle®

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Material Conveyance

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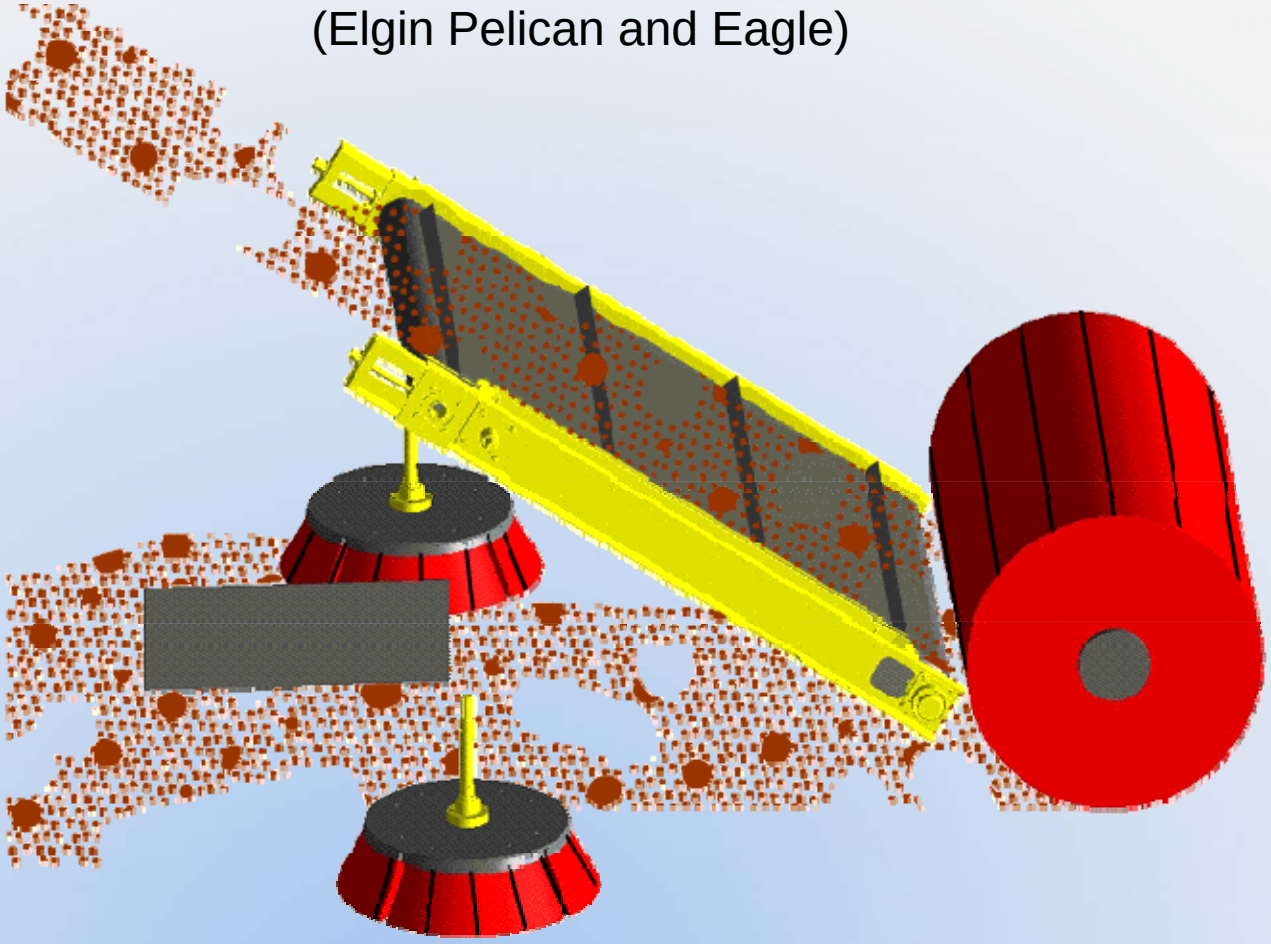
Standard Mechanical Broom Sweeper Mechanism

(Elgin Pelican and Eagle)



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Mechanical Sweepers

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- Most common type of sweeper in North America
- Very effective at dealing with large and / or high volumes of material
- Provides a good aesthetic look by capturing larger material on surface
- Unit is not capable of removing silt from the pores of the surface or sub-surface material and in some conditions may contribute to clogging permeable surfaces. and is therefore not recommended for this application

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Main broom road contact

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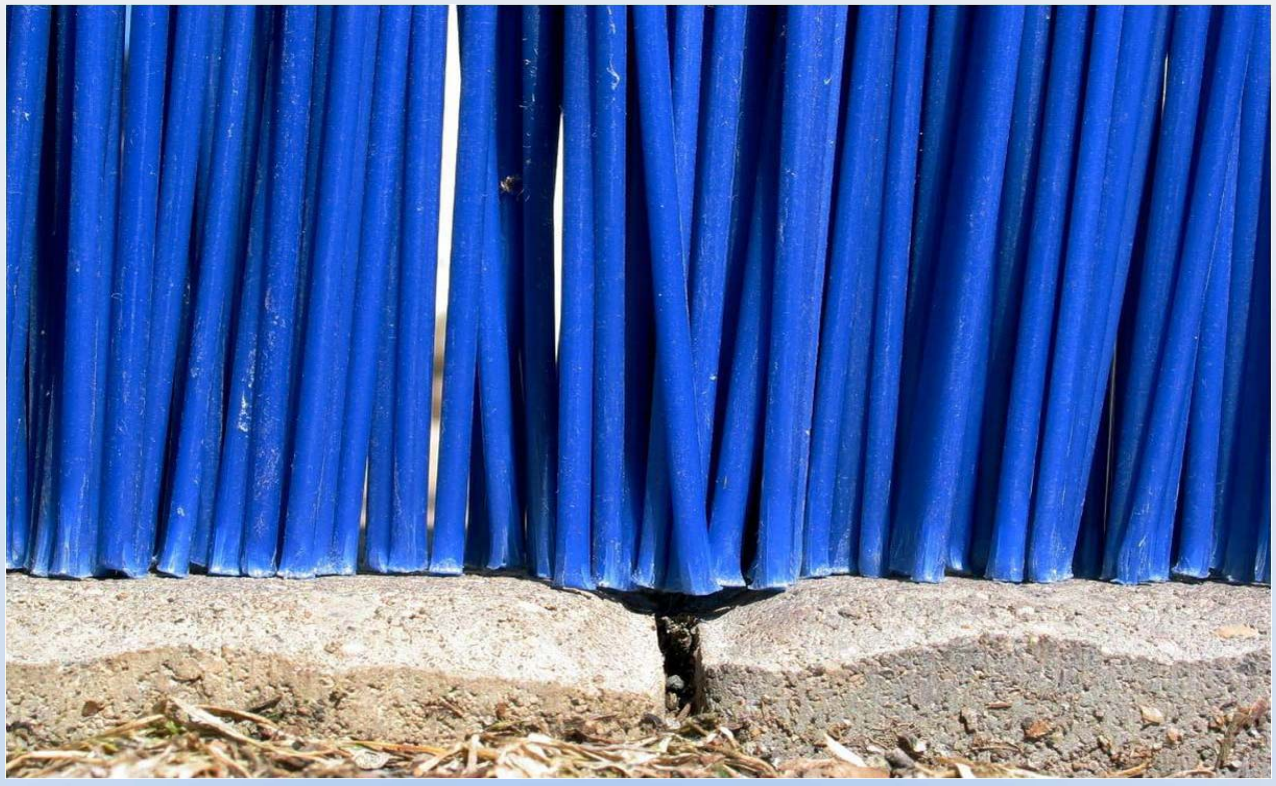

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Regenerative Air Sweepers

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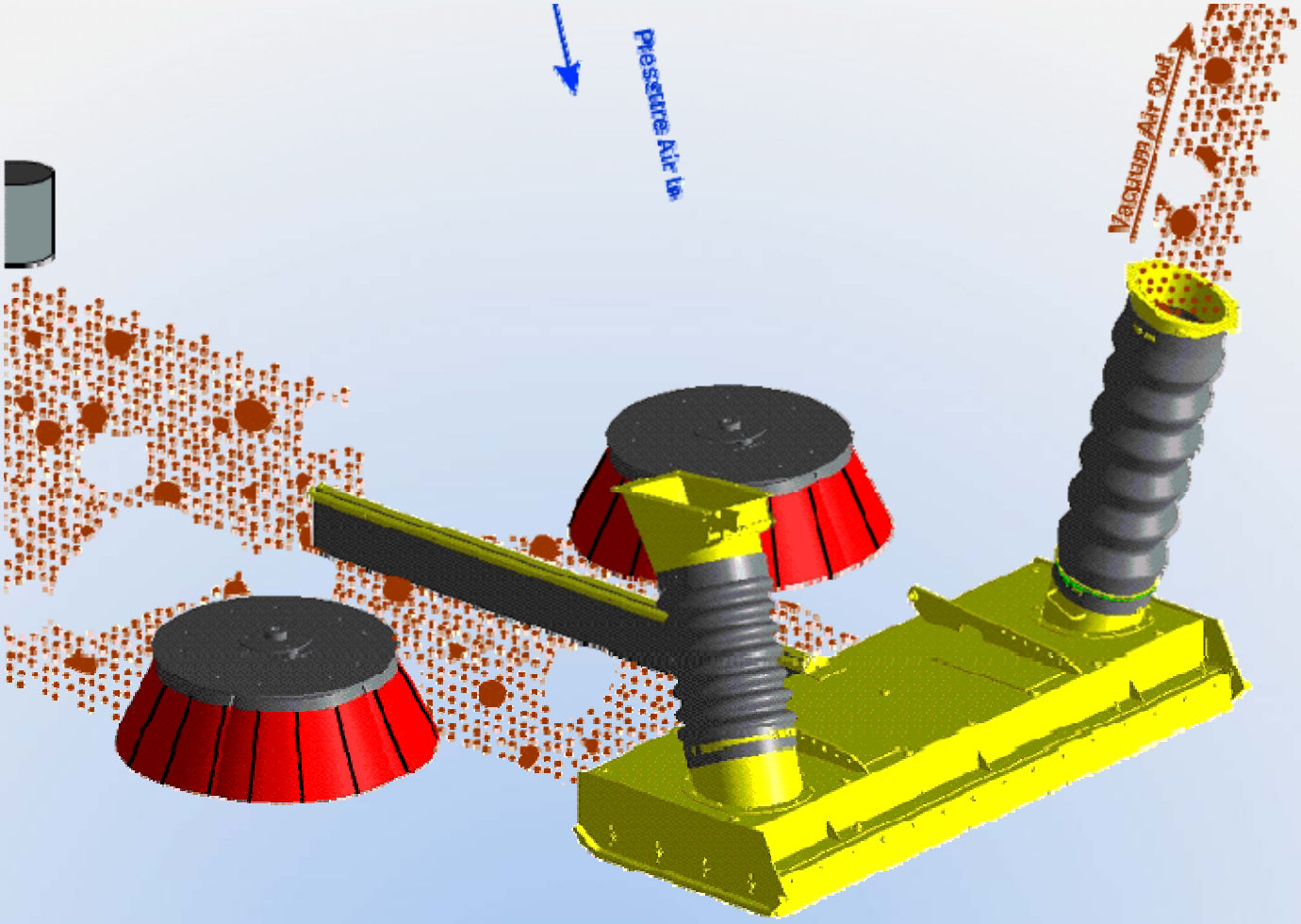
Regenerative Air Sweeper Mechanism

(Elgin Crosswind) **Clean Air. Clean Water. Clean Streets.**



Regenerative Air Sweepers

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- 2nd most common type of sweeper in North America.
- Typically utilized as a light debris maintenance sweeper
- It is not a true vacuum sweeper
- The head design does not permit concentrated enough vacuum to effectively remove silt from the pores or sub-surface of the road surface.
- Therefore not the recommended machine for this application.

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The regenerative sweeper may provide acceptable results for some maintenance cleaning but lacks the concentrated vacuum to for effective restoration.

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Pure Vacuum Elgin Whirlwind Sweeper And Your Application

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Pure vacuum street sweeper

Whirlwind – Your Application

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- 115 hp
- 20,000 cfm
- 70 inches H_2O vacuum – Most Vacuum at the Nozzle
- 36” x 6” nozzle dimensions (216 in^2)
- Power density ≈ .5 hp/sq inch
- Hopper capacities – 8 & 10 Cubic Yard

Comparative Shop Vac Performance

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- Approximately 1hp
- Approximately 6” x 2” nozzle (12 in^2)
- Power density ≈ .08hp/sq inch
- By comparison, and from a productivity standpoint, the Whirlwind produces .5 hp/sq inch and the surface area is 18 times larger !
- A vacuum sweeper is truly the most cost effective method of maintaining large areas

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Elgin Whirlwind

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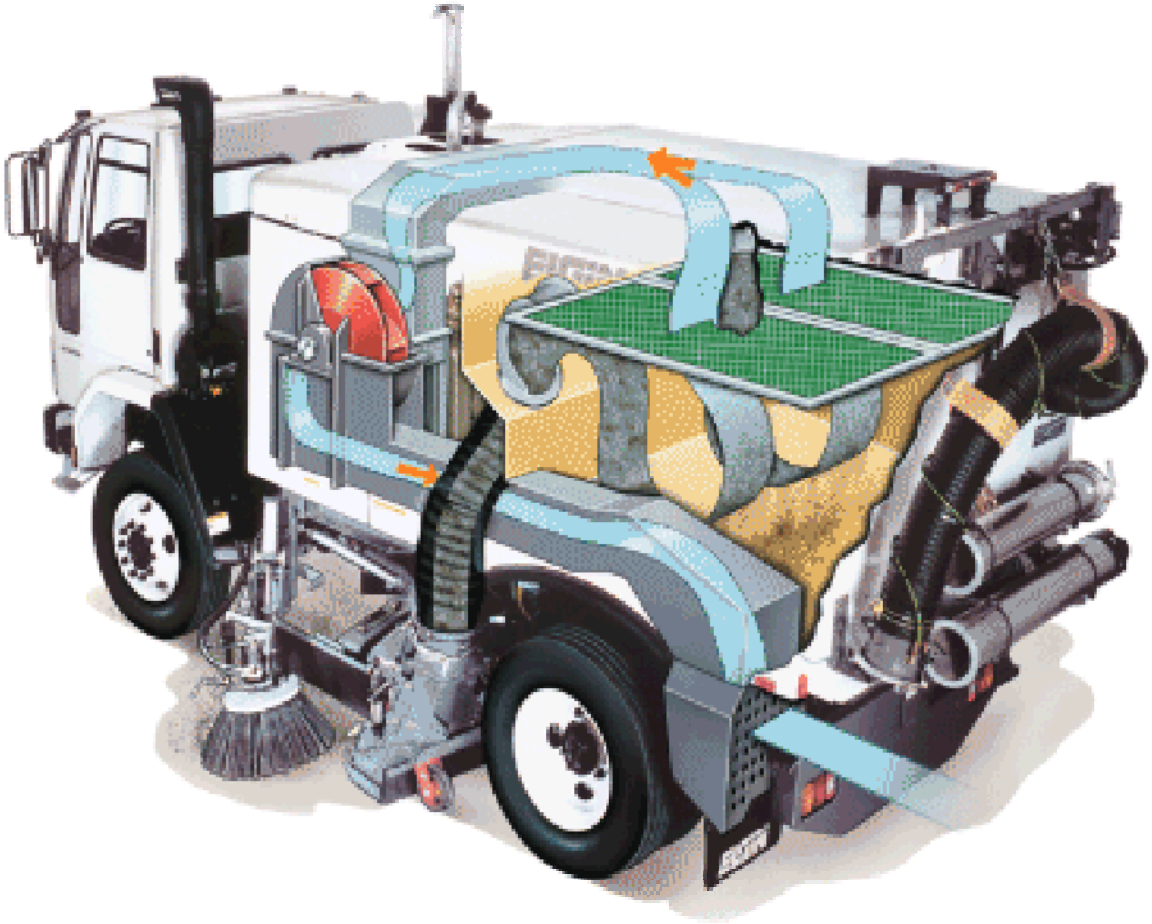

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Vacuum Sweeper Mechanism
(Elgin Whirlwind MV)

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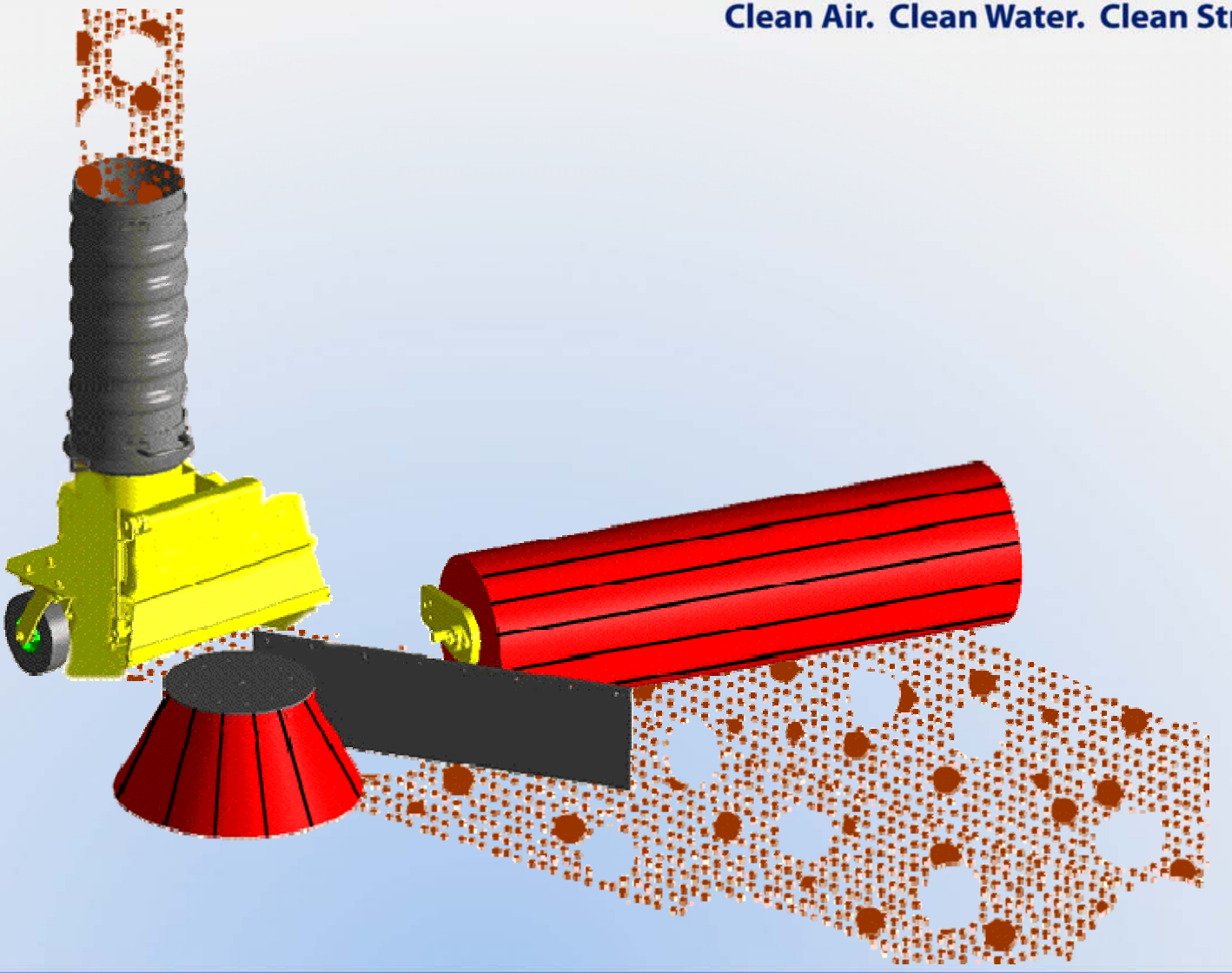

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- The pure vacuum design provides a very concentrated vacuum that penetrates the permeable surface and effectively removes silt from the sub-surface
- Pure vacuum sweepers offer the versatility of a rear mounted wandering hose for catch basin cleaning and for hard to reach areas
- Effective use of pressurized water at suction nozzle assists in debris removal under certain conditions
- Nozzle rides on castor wheels to minimize damage and aesthetics to the surface

Nozzle Design – Concentrated Vacuum

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Rear Catch Basin Cleaner - Versatility

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Thank you!

Questions?