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NEPTUNE AUTOMATED WHEEL WASH SYSTEM ONE (1) TIRE REVOLUTION SYSTEM MAXIMUS I

I. Wheelwashing Unit: Drive Through

The IES MAXIMUS I is a self contained wheel washing system that delivers one (1) full tire revolutions of cleaning power and is designed for permanent or temporary applications. The Wash Unit in the system is designed to be used either in ground or above ground as the customer chooses without requiring modification to the unit. MAXIMUS I is suitable for all commercial vehicles and trailers that have permitted use on public roads.

The operation of the system is simple and requires no operator. As the vehicle approaches the wheel wash system, the wash cycle is automatically activated by a Proximity Sensor. A technically engineered spray system creates an effective washing result for the complete length of the vehicle as it slowly drives through the wheel wash system at walking speed. The angled profile construction of the wash area flexes open the tire profiles and supplements the cleaning effect. MAXIMUS I will deliver one (1) full tire revolution of washing cycles to effectively clean the tires. The MAXIMUS I was specifically engineered using the principle of High volume and Low pressure to eliminate track out and is the ideal solution for this application.

The IES MAXIMUS II is a one (0) wash pump and one (1) return pump system which utilizes state of the art submersible water pumps that are made in the United States. The control panel will be individually configured to meet your site specific requirements in regards to timing and adjustability using readily available and easy to operate standard component parts.

II. Operating Water Management

The system is designed with a channel that is fitted perpendicularly underneath the central wash areas. Each wash element on the Maximus System is constructed with an integrated sloped steel pan that is designed to capture and discharge the wash water as the system is running. Each 12 foot section of the wash elements has a discharge point into the 8 inch by 8 inch support structure. As the system runs, the wash water gravity flows from the 8 inch by 8 inch tub into the adjacent water collection chamber and is then pumped up into the water recycling and solid separation tank.

The system utilizes a custom manufactured flocculent which greatly increases and optimizes the sedimentation process. This flocculent is added to the water as it is deposited into the tank which causes the solids to bind and drop to the bottom of the tank. The solid waste settles out in the main chamber while the surface water flows over an overflow weir into the pump chamber to be re-used in the system. On tanks equipped with scraper conveyors, the scraper-conveyor pulls the settled out solids to the end of the tank where it is augured up and deposited it into a sludge container. The solid waste is de-watered during the conveying process and the sludge is deposited outside the tank. Systems that are not equipped with a scraper conveyor will be cleaned out by the customer at regular intervals with a vacuum truck.

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MAXIMUS I
COMPONENT PARTS

WASH ELEMENTS

- A. Two hot-dip galvanized wash elements (left/right) 156" long x 42" wide. Each wash element is constructed of 5 inch x 5 inch tube for the angled profiles with an 8 inch x 12 inch header for the water to enter.
- B. The wash element bases are constructed with a W4 Beam with 8 inch x 8 inch tube and one (1) 12 inch x 12 inch center tube.
- C. The wash elements are designed to flange together and require no further internal piping between the elements.
- D. Each wash element contains an integrated, steel internal sludge and water drainage sloped steel pan for rapid discharge of the wash water.
- E. The elements are designed to take a maximum axle load of 26,500 lbs.
- F. The system includes checker plate steel covers manufactured from checker plate steel which lock onto the wash element frame.
- G. Each wash element is designed to be used on a flat surface
- H. Standard Track width: 114 inches

NOZZLES AND SPRAY BARS

- A. The stationary nozzle system includes ninety eight (98) one quarter (1/4) inch nozzles for complete washing of the tire profiles, outer and inner wheel surfaces and part of the chassis
- B. Two sets of side spray nozzles inset into the sidewalls to eliminate the possibility of damage from an over width vehicle. Each side spray houses twenty (20) one half (1/2) inch nozzles that are manufactured as a three part ball nozzle assembly. The three part assembly allows for easy adjustment of spray in the field.

PUMPS

- A. One (1) Heavy Duty Submersible HOMA Pumps Model No. AMX 434.
- B. Each pump has a maximum capacity of 815 gallons per minute at rate of 28 to 40 psi.
- C. One (1) Additional Return pump to return the water from the water collection chamber to the water recycling and solid separation tank. The pumps carry a five year warranty from the manufacturer; 2 years full replacement and an additional three year prorated warranty. Bearings are designed to meet B-10 life of 50,000 hours
- D. 150# flanged instead of NPT Connection
- E. Dynamically balance Impeller in accordance with the National Hydraulic Institute

AUTOCOUPLER PACKAGE, OPTIONAL

- F. The package includes HOMA auto coupler's designed to be installed on the floor of the clear water chamber located in the water recycling and solid separation tank.
- G. Each pump has a dual stainless rail that extends from the base of the auto coupler to the top of the water recycling tank. This rail and auto coupler allows the pumps to be removed from the tank or an additional pump added to the system without the need to dewater the tank and allows an additional pump to be connected

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COMPONENT PARTS, continued

FLOCCULENT DELIVERY SYSTEM

- A. Continual priming peristaltic flocculent pump
- B. Positive Displacement actions preventing backflow and eliminating the need for check valves when the pump is not running.
- C. Complete closure of the house which allows no contamination of the pump or fluid
- D. The flocculent is pumped directly from the original container and evenly fed into the water-system where it is optimally mixed, thus ensuring good sludge-settlement.
- E. The system requires the use of a specially manufactured, water soluble polymer to help facilitate the solid separation process. The flocculent is sold in 5 gallon pails or 55 gallon drums. For purposes of calculating an operating budget, a typical cycle will use 2-4 tablespoons and is sold in 5 Gallon Pails or 55 Gallon Drums.

CUSTOMIZED ELECTRONIC CONTROL CENTER

- A. Manufactured in the United States to individually to meet site specific requirements
- B. Control cabinet out of stainless steel with complete electrical technology in accordance with Standard EN 60 439-1
- C. Panel shall be equipped with the following additional features: U.L. 508A listed for Enclosed Industrial Control Panels; Minimum 1KVA transformer (480 volt only); 120V or 480V chemical pump; Elapsed time meter; Seal failure light; Phase failure protection (3 phase only); Swing dead front door with non-fused disconnect; Easy pump hook up; Thermal pump shut down; and Seal fail pump shut down
- D. Panel mounted in cabinet with Flocc pump at end of tank

FABRICATED STEEL WATER RECYCLING AND SOLID SEPARATION TANK

- A. Self-supporting steel construction consisting of a profile frame and corrugated plate.
- B. Overflow weir to the pump chamber with mesh insert to hold floating debris
- C. Pump fixing and water delivery line to the unit
- D. Automatic water-level control via a floating valve for the mains water connection
- E. Can be configured to be used above ground or as a gravity flow tank
- F. Overflow weir to the pump chamber with mesh insert to hold floating debris
- G. Surge Plate
- H. Pump fixing and water delivery line to the unit
- I. Useful volume: 5,000 Gallons

OPTIONAL: INTEGRATED SCRAPER CONVEYOR:

- J. The Water Recycling and Solid Separation Tank can be configured with an Automatic Scraper Conveyor mechanism designed to scrape the solid from the bottom of the tank, carrying them up and out the waste shoot. The system runs automatically when the system is activated and continues to run for an adjustable predetermined length of time after the wash cycle has been completed to fully remove the solids.
- K. Useful Volume of Water: 5,000 gallons

RAMP DESCRIPTION: OPTIONAL

- A. Four (4) Stainless Steel ramps, Two (2) each entry and approach
- B. Sixteen feet long designed for an easy 21 inch grade transition
- C. Integrated side rub rails for extra safety

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COMPONENT PARTS, continued

ADDITIONAL INFORMATION

- A. Includes all necessary water delivery piping/channels within the unit-system
- B. Includes Data Sensor Model S30-1-C200-1 Proximity Sensor mounted in a galvanized stand which allows for flexibility of automatic timing
- C. Sensor Cable Hard Wired to Control Panel
- D. Lockable Steel Cabinet designed to house the Control Panel, flocculent pump and 5 gallon bucket of flocculent mounted to the Water Recycling and Solid Separation Tank
- E. Connected load of complete system: 18.8 HP, 3-phase, 480 V