

BIOTECH SOLUTIONS

Overview:

BioTech Solutions in partnership with Chemical Reduction Solutions (CRS), the developer of the patented pending Nano Particle Generator known as THE SHAFT' has incorporated the technology into the BioTech Solutions wash water polishing process for improving wash water quality for enhanced rinsing, reduced chemical usage and optimal drying characteristics. Combined with Arcadian Services industry leading microbial reclaim water treatment Reclaim Defender, car wash operators realize a significant improvement in reclaim water quality and its reusability. Resulting in reduced domestic water and sewer billings, reduced maintenance expenses and improved customer experience. BioTech solutions in partnership with chemical Reduction solutions and Arcadian Services are proud to release several innovative water management products and services designed to significantly lower the car wash operators directs costs associated with water, maintenance and labor expense. BioTech Solutions is so confident in our product and our innovative wash water solutions we stand behind them with a 100% ROI Payback Guarantee.

Domestic Water Applications - for wash operators that only use domestic water in their operations The Shaft is installed in the domestic water line or directly on the equipment function buildings backflow valve or re-pressurization regulator. Use of this device will result in improved drying, enhanced chemical cleaning resulting in overall improved wash quality, operators report:

- improved drying,
- improved cleaning applications
- reduced chemical usage.
- reduced operating expenses
- happier customers

Reclaim Water Applications, it is highly recommended that the customer start by first completing the inoculation process of a microbial water treatment program prior to extended use of the CRS Nano Particle Generator. Arcadian Services industry leading microbial water treatment products sold under the name of Reclaim Defender combined with Biotech's recovered wash water Conditioners and Bio Cleaners. Kick start the cleaning and polishing process providing a sustainable water treatment process that results in:

- Reduced Sludge build up in separator tanks
- Consumption of up to 60% of solids trapped in mud pits
- Significantly improved reclaim water clarity
- Reduced to complete order removal
- Greatly improved rinsing quality of reclaim water

Continuous use of the Arcadian Services Reclaim Defender microbial treatment process provides the foundation for long term high quality reclaim water treatment program.

Use of a CRS Nano Particle Generator, on its own or combined with gas (air, concentrated oxygen or ozone) will increase the efficiency of the wash water being treated. This process improves the oxidation potential of the water resulting in:

- Improved **Dissolved Oxygen Levels** which causes dispersion in the water. With improved solvency, nano water is better able to dissolve solids in wash water and disperse both water for improved rinsing or chemical for enhanced wetting characteristics in the car wash process.
- Increases the **Oxidation Reduction Potential (ORP)** of the water. Oxidation plays a critical role in washing water, ability to break down contaminants. It also supports beneficial microbial activity for enhanced water clarity.
- In fresh or clean water applications the Shaft produces hundreds of millions of negatively charged particles below 200 nm which remain in solution. Due to the electrical charge they attach to pathogens, biofilms & contamination trapped in pipes, nozzles and filters. Reducing them into “Hydroxyl Radicals” which are dissolved away leaving tanks, plumbing and equipment clean and operating at near new condition.
- Introducing mixed gas or concentrated oxygen to the Shafts, enhances the efficacy of the oxidation potential, resulting in increased Oxidation Potential Reduction (ORP) and greatly increases dissolved oxygen levels. The unique properties of the Shafts Cavitation Electro-Ionization, provides maximum saturation levels ideal for multiple functions throughout the car washes operation.
- With improved concentrations of Nano sized particles in the water quality is greatly enhanced. Resulting in:
 - improved dispersion of wash chemistry
 - Improved hydrophobicity of water for improved rinsing
 - Reclaim Water Turbidity is greatly improved for improved wash quality
 - Total Suspended Solids (TSS) and Total Dissolved Solids (TDS) are reduced
 - Oxidation levels increase resulting in improved microbial water health.

This process is especially true when the Shaft is used for polishing Reclaim Water where Reclaim Defender treatment is applied.

Equipment Packages and Microbial Solutions Packages

BioTech Nano Particle Generator Solutions – We offers five versions of the CRS Nano Particle Technology for Customer Use. In addition, there are several options which may be purchased to enhance the CRS Systems and treat both your domestic and recoverable water sources. All packages can be purchased, leased or offered to the customer in the form of a monthly service program which incorporates management of the entire water treatment program for the car wash.

The CRS Nano Particle Generators are incorporated into five BioTech Manifold Design Features. All manifolds are made from either schedule 80 PVC, or profited 304 stainless steel plumbing. ***Design Options are as Follows:***

- **OEM Version** – Lowest Cost Point, customer integrates CRS “Shaft” into wash application using BioTech Solutions manifold designs and placement recommendations. All OEM sold products come with a One Year Warranty Equipment Warranty. For use in both Domestic and Recoverable Reclaim Water application. For Reclaim Water applications, Arcadian Services Reclaim Defender products must be used prior to installation of the CRS Shaft with Car Wash Reclaim Water. These products may be purchased at a discounted price.

- **Main Line - Wall Mounted Unit** – A preassemble unit is delivered to the operator for installation on equipment room wall. Includes properly sized CRS Shaft, manifold PVC 80 or Pro Crimp 304 stainless steel, oxygen flow control, ph monitor with two 24vdc relays for optional flow gate controls.
- **Slide Out Mount** – For tight equipment room configurations - 18” extendable slide out is attached to the wall or ceiling. The CRS Shaft and manifold is mounted to a ½” Poly-board for additional durability. The CRS Manifold is suspended in air and uses straps to secure the unit into position. Rubber hose water lines with quick disconnects are used rout both input and outgoing reclaim water for quick access. Extendable rack allows for moving the unit for access to other mission critical equipment..
- **Stand Mounted Design** – Wall Mounted Unit, is set to a floor stand which is secured to the floor for easy access and service ability. Custom stands are available for an additional fee.
- **Bioreactor Design** – Through the use of a holding tank (60 to 800 gallon) processed reclaim water is held for use and treated until ORP, DO and pH levels reach a predefined level. At that point the water is transferred to a ready-to-use tank for use in the car wash. Bioreactor is continuously refilled to provide maximum water treatment for any reclaim system, soft water and RO water including RO Concentrate, can be treated to further enhance water quality by improving the dispersion affect. Bioreactor water treatment, developed by BioTech Solutions in partnership with Arcadian Services and Chemical Reduction Solutions, is the most advanced water treatment platform available in today’s car wash industry.

BioTech Particle Generator Options:

Reclaim Water Options: are available for improved efficiency and trouble-free treatment of microbial and nano particle water treatment.

- **Reclaim Defender Product Distribution Pumps** – For controlled usage and optimal results. Several delivery systems have been developed to aid in the controllability of the dosing of the Reclaim Defender Products. For further information please contact BioTech representative or visit us at www.biotecholutions.ai
- **Mazzei Manifold** - Assembly for use in mass gas transfer options. Units control internal operating pressure by mixing all gas types into Nano particle Generator for optimal efficacy of unit. For sizing and costing of unit please contact your BioTech Representative or visit use at www.reclaimdefender.ai
- **Water quality monitoring and control solutions** - BioTech probes, track the key quality indicators (ORP, DO, PH, TDS, Salinity and Temperature) along with electronic sensors to control multiple water use functions of the car wash or Bioreactor. For further information please contact a BioTech Service Representative or visit us online at www.biotecholutions.ai
- **Additional Benefits** of BioTech Water Quality treatment, monitoring and control technologies include:
 - **Sludge Reduction** – After Hour Setting increases ORP Setting to 500 mv. Once recovered wash water is treated it is released into the conveyor trough or collection pits to clean and reduce solids held in the collection pits.
 - **Maintain Ready-Use-Tank** – Controls water quality and monitors for source water disruptions. If water pressure drops system automatically transfers

Ready use tank to Domestic water safeguarding car wash operations until problem is corrected.

- **Tracks Reclaim Water Usage** and Ready-Use-Water Usage hourly, Daily or Monthly. Water Quality controls can be tied to tunnel controller data to track car counts and provide a more accurate water usage analysis.
- **Reduces Domestic Water Demand** – Throughout the car wash operation along with reducing sewer usage by collecting and treatment of all wash water sources. Treatment reduces domestic water needs, improves usability of treated water resulting in reduced over all water requirements. With the use of a Bioreactor, customer domestic water usage can be reduced by up to 70%.
- **Domestic Water Usage** – Domestic Main Line, Submersible Pump Design, Soft Water or RO Water Tank Design. BioTech's electro-ionization nano particle generator, The Shaft' is especially useful for In Bay Automatic's, Self-Serve Bays, Tunnel Operations and Mobile Wash applications. Treatment results in reduced chemical usage, improved rinsing resulting and cleaner cars.
- **Reclaim Water Applications** – In use with car washes reclaim processor. The Shaft' is used as a mass gas transfer device for odor control and as a recovered water polisher for improved water turbidity.
 - **Main Line Configuration** -the Shaft is attached to the output of the car washes reclaim processor in a side saddle configuration. Up to 80% of the processed reclaim water can be channeled through the device. The Shaft can be used with or without oxygen for improved cavitation and oxygen saturation. Depending on configuration, oxygen concentration will improve by over 180% saturation, while adding over 300 million nano sized oxygen particles to the water for improved hydrophobicity of the reclaim water and dispersion of car wash chemicals for improved rinsing.
 - **Bioreactor Configuration** – The Shaft' is paired with a smart pump and is connected to the reactor in a continuous loop configuration. Oxidation Reduction is controlled by a BioTech Solutions water quality monitor and microbial delivery pump. Oxygen is used to enhance the cavitation effects of the Shaft which raises dissolved oxygen saturation to over 300%. Water dispersion occurs as the nano particle sized dissolved oxygen saturates the confined space within the Bioreactor which causes separation of the saturated solids. Further reducing water recovered wash water turbidity to below 20 NTU. Making this recovered wash water suitable for reuse in all wash functions outside of the final rinse.