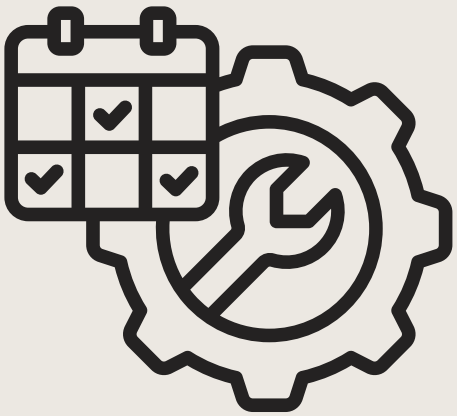
Nanobubble water conditioning for WashWorld In-Bay-Automatics.

CRS
CHEMICAL REDUCTION SOLUTIONS

Drier Cars. More Foam. Reduced Maintenance.



Car Wash Water Is Working Against You

Mineral scale, poor water behavior, and inefficient chemistry reduce wash quality, reduce chemical performance, create maintenance headaches, and limit throughput

All this adds cost and labor expense to any car wash business

CRS Solution

CRS installs a patent-pending, passive nanobubble generator inline on key car wash water lines. Using hydrodynamic cavitation and electro-ionization, the system continuously conditions water before it reaches RO machines, chemistry injectors, manifolds, and rinse stages.

Key Benefits

- Improved chemical effectiveness & coverage
- Better rinse performance & spot-free drying
- Less scale buildup in plumbing, injectors, and RO systems
- Improved efficiency and reliability
- Extended equipment life
- Less algae growth in bays
- No electricity or consumables

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WHAT IS A NANOBUBBLE?

Tiny. Stable. Game Changing.

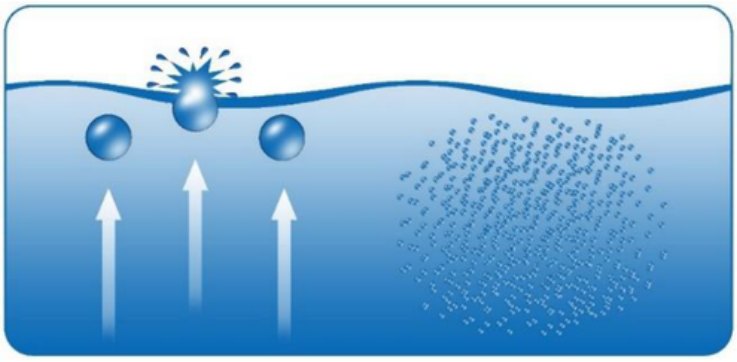
2500 times smaller than a grain of sand, nanobubbles are so small that they have a lower bouyancy and will remain suspended in water for a long time

Industrially Useful

Nanobubbles are useful in removing and preventing scale and biofilm growth, improving heat transfer, inhibiting rust, reducing surface tension and improving filtration efficacy

We are the future of your business

CRS is on a mission to use their economical and simple nanobubble generator, The Shaft, to improve profitability and reliability of water systems



nanobubbles remain suspended in water

575+
CRS SHAFTS DEPLOYED IN 2025

MORE THAN **15 years**
OF EXPERIENCE

500+ million
GALLONS OF WATER TREATED BY THE SHAFT PER MONTH

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HOW ARE NANOBUBBLES FORMED?

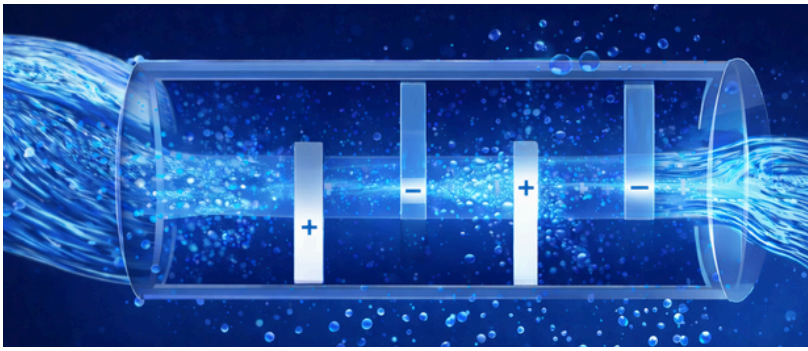
Hydrodynamic Cavitation

As water flows through The Shaft, the internal geometry creates localized pressure differentials and high shear zones. Under appropriate flow conditions, these effects induce controlled hydrodynamic cavitation

Ionization of Entrained Gas

Nanobubbles are formed under more lenient flow conditions when the gasses that are entrained in water are ionized or charged by The Shaft's proprietary metal alloy baffles

Hydrodynamic cavitation plus entrained gas ionization



Hydrodynamic cavitation is a well-documented physical phenomenon in which microscopic vapor- or gas-filled cavities form and collapse due to transient pressure reductions in a moving liquid. In The Shaft, this process also results in the formation of stable micro- and nanobubbles.

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CRS614 SHAFT® NANOBUBBLE GENERATOR

Low Pressure Pump Feedline Installation Instructions

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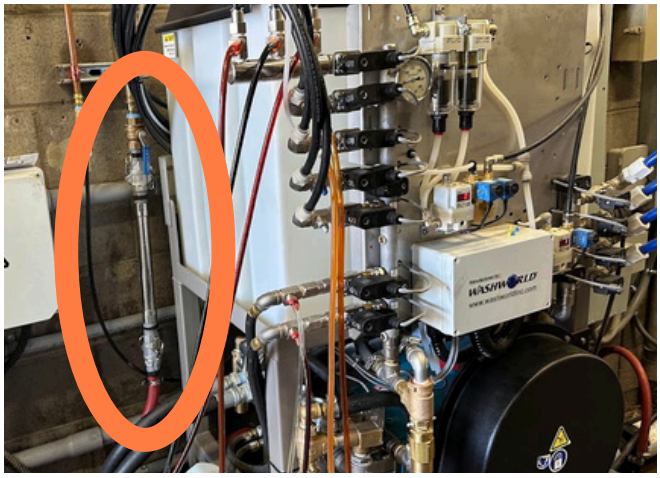
CHEMICAL REDUCTION SOLUTIONS

APPLICATIONS

- Suitable for all WashWorld in-bay-automatics
- Infuses feedwater with nanobubbles
- Enhances foaming performance and coverage of car wash chemistry
- No power, no programming, no maintenance required
- Can flow in either direction

IMPORTANT INSTALL LOCATION



THREAD SEALANT REQUIREMENT

- Use Loctite 55 cord
- Apply to all NPT threads
- Do not use excessive sealant

BENEFITS FOR OPERATORS

- Higher Wash Quality
- Better Drying Performance
- Enhanced Coverage and Foaming Action
- Long Term Equipment Protection
- Reduced Algae Growth in the Bay

INSTALLATION STEPS

01 Shut Off Water Supply
and relieve pressure by opening a downstream fitting

02 Disconnect the water line to the low pressure pump

03 Install CRS614 SHAFT® inline
Using appropriate thread sealant and fittings

04 Restore Water Supply

05 Check for Leaks

06 Flush and Return to Service
If machine is badly scaled a good flush should be done before re-using

TECH NOTES (FOR SERVICE MANAGERS)

- Take a video of a car wash prior to installation and compare to post-installation
- Passive device – cannot fail electrically

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CRS15 SHAFT® NANOBUBBLE GENERATOR

Upper Manifold Installation Instructions

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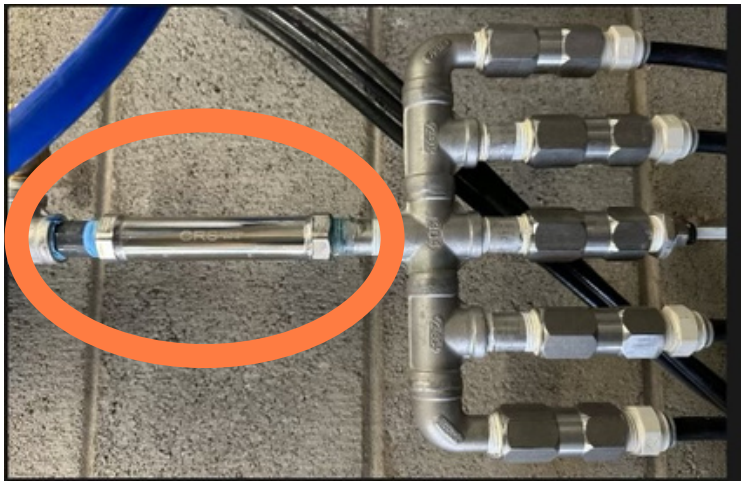
APPLICATIONS

- Suitable for all WashWorld in-bay-automatics that use an upper manifold (otherwise known as a “pitch fork”)
- Enhances foaming performance and coverage of car wash chemistry
- No power, no programming, no maintenance required
- Can flow in either direction

IMPORTANT INSTALL LOCATION



THREAD SEALANT REQUIREMENT

- Use Loctite 55 cord
- Apply to all NPT threads
- Do not use excessive sealant

BENEFITS FOR OPERATORS

- Higher Wash Quality
- Better Drying Performance
- Enhanced Coverage and Foaming Action
- Long Term Equipment Protection
- Reduced Algae Growth in the Bay

INSTALLATION STEPS

01 Shut Off Water Supply
and relieve pressure by opening a downstream fitting

02 Disconnect the water line immediately before the upper manifold

03 Install CRS15 SHAFT® inline
Using appropriate thread sealant and fittings

04 Restore Water Supply

05 Check for Leaks

06 Flush and Return to Service
If machine is badly scaled a good flush should be done before re-using

TECH NOTES (FOR SERVICE MANAGERS)

- Take a video of a car wash prior to installation and compare to post-installation
- Passive device – cannot fail electrically

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SHAFT® NANOBUBBLE GENERATOR

Spot Free Rinse Installation Instructions

APPLICATIONS

- Suitable for all reverse osmosis machines
- Designed for municipal or treated water
- No power, no programming, no maintenance required
- Installs before the pre-filter
- Can flow in either direction

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IMPORTANT INSTALL LOCATION

The SHAFT® MUST be installed BEFORE the water filter

Why? Nanobubbles cause suspended minerals and impurities to coagulate, which:

- Extends filter life
- Improves filtration effectiveness
- Reduces scale and biofilm inside the RO machine

THREAD SEALANT REQUIREMENT

- Use Loctite 55 cord
- Apply to all NPT threads
- Do not use excessive sealant

TWO INSTALLATION STRATEGIES (SIMPLE & PERFORMANCE BOOSTING)

Single Pass: Place the Shaft upstream of your earliest pre-filter to protect your RO system, improve pre-filtration, lower scale buildup and infuse both RO permeate and reject water with nanobubbles

Multi-Pass Recirculation (Premium Drying Performance): Create a recirculation loop inside the RO permeate tank using a submersible pump. With each pass through the SHAFT, ORP and drying performance improves

INSTALLATION STEPS

01 Shut Off Water Supply
and relieve pressure by opening a downstream fitting

02 Disconnect the water line immediately before the filter

03 Install CRS SHAFT® inline
Using appropriate thread sealant and fittings

04 Restore Water Supply

05 Check for Leaks

06 Flush and Return to Service
If machine is badly scaled a good flush should be done before re-using

TECH NOTES (FOR SERVICE MANAGERS)

- No pressure drop impact on RO machines
- Compatible with carbon, sediment, and other pre-filters
- Passive device – cannot fail electrically

SHAFT® NANOBUBBLE GENERATOR
Spot Free Rinse Unit Model Selection

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INSTALL TIPS

- Use the lowest flow SHAFT® that will NOT trigger a low pressure fault on the RO machine
- After initial installation and after running the SHAFT® for several days, change RO pre-filters to maximize effect
- The SHAFT® cannot repair RO membranes with channels and holes, but can improve lifespan

SONNY'S MODEL NUMBERS

SONNY'S RO Machine	SHAFT® UNIT
VROF-2	CRS39
VROF-4	CRS614
VROF-6	CRS1020
VROF-8	CRS1020
VROF-12	CRS2040

SHAFT® MODEL SIZING

01 Measure the Total RO Flow

Permeate Flow + Reject Flow = Total Flow

02 Choose the Right SHAFT®

TOTAL RO FLOW (Permeate + Reject)	SHAFT® UNIT
1 - 2 GPM	CRS03
3 - 4 GPM	CRS15
5 - 7 GPM	CRS39
8 - 13 GPM	CRS614
14 - 20 GPM	CRS1020