



Chemical Dispensers: The Driving Force behind Car Washing Success

Best Practices and Insights for your Car Wash Operation

Based in Cincinnati, Ohio and with offices and support teams around the globe, Hydro Systems is a world leader in delivering chemical dispensing and dosing solutions including equipment, software and services. With strategic partnerships, innovative solutions and more than 50 years of experience, Hydro Systems is committed to enriching the lives of its customers by creating a cleaner, more sustainable world. Its products serve numerous dosing and dispensing applications within commercial cleaning, laundry, warewash, food service, industrial, irrigation, horticulture, animal health, and other industries. Hydro Systems ensures dosing is always accurate, safe and cost effective, helping customers clean with confidence. For more information, visit www.hydrosystemsco.com or contact 800.543.7184.

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The Current State of the Car Wash Industry

The car wash industry has revved up its engines in recent years. The global car wash service market size was valued at US\$33 billion in 2018 and is expected to achieve a compound annual growth rate (CAGR) of 3.2% to 2025.¹ Today, there are 62,668 car wash locations across the United States that service the 77% of drivers who prefer a professional car wash to washing their vehicle at home. This number is up from 48% of drivers who preferred car wash services in 1994.²

While the coronavirus pandemic is sure to have an impact on car wash revenues, there is still optimism over the long term. According to an Operator Pulse Survey conducted in April 2020 by the International Carwash Association among 150 car wash owners, more than 70% of sites located in areas with business restrictions due to coronavirus were still operating.³ Additionally, nearly 50% of operators had positive expectations for their business when looking at the next six months.

The U.S. Census Bureau estimates that Americans spend \$5.8 billion per year on car washes.⁴ Customers are increasingly choosing car washes over washing their vehicle at home because professional car washes are more environmentally friendly⁵, convenient and efficient.⁶ They use less water per vehicle and also produce less chemical runoff into the environment than at-home washes. Professional car washes also deliver a higher level of cleanliness than most people can achieve at home through the use of advanced chemical delivery systems and high-powered drying systems. Rising interest in vehicle maintenance, increasing spending power and busy schedules are all driving consumers to opt for professional car washes rather than at-home washes.

As the car wash industry grows, establishments are increasingly seeking ways to keep up with growing demand. Chemical proportioning and injecting equipment help car washes increase their efficiency and accuracy, ultimately improving productivity. As car washes begin to process higher volumes of cars, many are transitioning to chemicals known as superconcentrates, which are highly concentrated solutions. Various types of proportioning and injecting equipment, from water-driven pumps to venturi and electronic injectors, help ensure these powerful chemicals are diluted properly. Chemical dispensing equipment can streamline the car wash

¹ <https://www.grandviewresearch.com/industry-analysis/car-wash-service-market>

² <https://www.carwash.org/for-operators/industry-information>

³ International Carwash Association, Inc., Operator Pulse Survey, April 6, 2020.

⁴ <https://brandongaille.com/19-car-wash-industry-statistics-and-trends/>

⁵ <https://www.tidalwaveautospa.com/blog/3-reasons-commercial-car-washes-are-the-eco-friendly-choice/>

⁶ <https://cleantools.net/blogs/news/hand-washing-vs-automated-car-wash-which-is-better-for-your-car>

process by using fewer pumps to handle a variety of chemicals, whether they are acid, neutral or alkaline based.

As a car wash owner, it is imperative to understand how to meet and exceed customer expectations as well as how to overcome common challenges these businesses face. Taking a closer look at the equipment necessary for running a successful car wash can help owners implement solutions that will support their operational over the long term.

What Consumers Expect from a Car Wash

As more and more drivers turn to professional car washes, they are looking for high-quality, efficient service at a reasonable price. Car wash businesses should consider the following factors to remain competitive in the market:

- **Price:** While there is no one-size-fits-all price for car washes, it is important to consider the services the business is providing. Typically, in-bay car washes, or the smaller-volume facilities often affiliated with convenience stores or gas stations charge an average of \$6.34 per wash. Full-service car washes, on the other hand, cost an average of \$15.⁷ Additionally, some car washes are able to charge more because they provide an interior vacuum clean as well as exterior services. When developing a pricing structure, owners should take into consideration the costs associated with labor and chemical usage, as well as how employees and equipment drive a superior clean.
- **Quality:** It's not just the new car "smell" that is sought after – consumers want their cars to look new as well. To provide the level of sparkling clean that vehicle-owners expect from a professional operation, some car washes change the type of chemical they use depending on the season. The reason for this is that some chemicals are better suited to tackle salt and grime during the harsher winter seasons that the Midwest and Northeast experience. Other car washes have switched to superconcentrates, which deliver more cleaning solution in lower volumes.
- **Efficiency:** If there is a long line of vehicles waiting outside the car wash, customers might simply turn around and drive home, or look for another car wash business to be their go-to spot. Car washes with express lanes or short cycle times often see more customers than washes that will take 20 minutes per car.⁸ Given the increasing demand for professional services, it's essential that car washes invest in reliable proportioning

⁷ <https://www.jbsindustries.com/blog/starting-car-wash/>

⁸ <https://www.carwash.com/understanding-carwash-customer-trends-issues/>

and injecting equipment. Having the right equipment helps vehicles get through the line quickly without sacrificing results.

Because the number of car washes is growing so rapidly, businesses must work to continuously improve results to maintain customer satisfaction and secure consumer loyalty. It might be necessary to invest in newer equipment as the industry grows in order to remain competitive.

The Challenges of Modern Car Washes

As the modern car wash industry expands, car wash technology should evolve as well. The majority of car washes (90%) are owned by small business owners,⁹ and they might not have the same resources as larger corporations to adapt to rapid growth.

Today's car wash owner faces numerous challenges to gain and maintain clientele, including:

- **Keeping up with customer demand.** Customers expect quick washes with high quality results and excellent customer service. To build and sustain a customer base, it is essential for car washes to provide impeccable service, which can range from offering comfortable seating areas, interior car cleanings or state-of-the-art technology. Most importantly – car washes must provide the customer with a sparkling clean and dry vehicle ready to hit the road.
- **Managing costs.** Apart from labor, chemical is the highest variable cost for car washes. Some car washes spend up to \$5,000 per month on chemicals. The chemical cost per wash ranges from as low as \$0.30 per wash to upwards of \$1.25 per wash. If a car wash operator does not have tight control over dilution ratios, this can result in wasted chemical and poor-quality results. This makes it extremely important to install reliable chemical dispensing equipment that delivers accurate dilutions every time.
- **New regulations.** There is an increasing number of regulations in place to restrict water usage within car wash operations. To avoid water waste and impact fees, water reclamation systems were developed. In addition to reusing water, it is necessary to wash a car right the first time, as a second or third wash will only waste more water. When chemical dilution systems don't operate properly, this can also result in the need to use more water to effectively rinse the car.
- **Addressing competition.** To make the most of their investment, some landowners choose to build multiple car washes at once. With numerous car wash options for consumers to choose from in one geographic area, it can be difficult for smaller or

⁹ <https://www.washos.com/blog/statistics-car-wash-industry/>

newer businesses to compete. Thus, car wash owners must deliver on their promises of price, quality and efficiency.

- **New technology.** As newer technology emerges, car wash owners need to weigh their options and invest in long-lasting, reliable and accurate equipment. However, newer technology is not always a cost-effective option for owners. Owners should carefully consider which modifications will provide a return on investment (ROI) and whether competitors are making changes as well.

Essential Equipment for Car Washes

Chemical dispensers help car wash facilities keep up with increasing demand and the call for better efficiency and results. These solutions provide more accurate dilutions, reduce the amount of water needed per wash and help get vehicles through the wash even faster.

Tunnel car washes generally use several different chemical dilution systems. With so many systems in place though, there's room for error. Some dispensing systems have accuracy issues, failing to meet expectations at very lean dilution ratios. If ratios are off by more or less than 10%, car washes could be wasting chemical or under diluting, resulting in poor performance and unhappy customers.

In addition to different types of equipment, car washes use a wide variety of chemicals. From tire cleaner to pre-soak to detergents to undercarriage wash, car wash chemicals range from having very low to very high pH values. With the move to more super-concentrated chemicals, chemical resistance compatibility becomes that much more important. If a dispenser is not equipped to handle newer, highly aggressive chemicals, it will wear down over time and require replacement, which further drives up operational costs.

Most car washes use either high-pressure or low-pressure systems. High-pressure systems, which use venturi injector systems (200 pounds per square inch), have become an increasingly popular choice for tunnel car washes. Delivering consistent and accurate mixed solutions, high-pressure systems typically use less water. However, high-pressure systems come at an expensive cost and use more electricity than the alternative.

Over the years, low-pressure systems have become an industry standard. Some car wash owners prefer the low-pressure approach with venturi eductor systems (40 to 60 pounds per square inch), because they provide longer residence time of the chemical on the car. This ultimately helps to remove more dirt and grime and can prevent car washes from having to re-wash a car at their own expense. Most low-pressure systems are water powered, almost entirely eliminating the need and expense of electricity. Low-pressure systems also maintain the level of ready-to-use solution and shut off automatically once the tank fills completely.

What to Look for in Chemical Dispensing Equipment

With all the options available, car wash owners want to ensure that they pick the best type of dispenser for both the business and its customers. When looking to invest in equipment, operators should consider the following benefits:

- **Accurate dilution.** Especially with the move toward superconcentrates, car washes rely on dispensers to ensure that chemicals are mixed at the proper dilutions in order to clean cars effectively. It is important to seek out systems that allow operators to easily set flow rates and dilution rates, thereby providing predictable performance and peace of mind.
- **Chemical compatibility.** The general progression of the wash cycle is:

Pre-soak→Detergent→Specialty Chemical Application→

Wax/Protectants/Rinse Aids→Rinse →Tire Care

Each step typically uses its own unique chemicals and car wash operators must determine whether equipment is compatible. Some dispensers require two or more different pumps since they are each designed for use with specific chemicals. This adds unnecessary complexity to the operation. Instead, car wash owners should look for a product that simplifies the process by using one pump that can handle alkaline-based, neutral and acid-based chemicals. Equipment that can be used across all applications has been carefully tested and built with specific components in mind.

Chemical compatibility is especially important given an emerging industry trend around using fewer types of chemicals to clean cars. While the wash cycle consists of the same number of steps, chemical companies are promoting that car wash businesses can mix two chemicals together to reduce the number of chemicals shipped to their site. Because the facility is then mixing chemicals on site, it becomes more difficult to ensure chemical compatibility. A one-pump solution allows car wash owners to spend more time running their businesses and less time worrying about compatibility issues.

- **Long life expectancy.** Before choosing a dispenser, conduct some research to determine which brands have proven track records within the industry. The goal is to install a dispenser that won't require replacement within several years. Innovations that have a long lifespan improve efficiency and reduce costs over the long term. As products are designed to run for a certain number of cycles, owners should ask the manufacturer to share this information to determine the expected lifespan.

When dealing with a water-driven pump, check whether it has a reliable seal to ensure chemical compatibility. If the equipment has not been built with the correct seal package, chemicals will attack the seal and cause leakage of the chemical into the lower end of the pump. Replacement requires the direct cost of purchasing new equipment as well as the indirect cost of closing down the business temporarily to install it. Downtime, especially during the busy summer season, can result in lost business.

- **Ease of use.** The HydroMinder WDP features an adjustable lower end that controls the ratio of chemical that is mixed with water prior to being delivered to the car wash equipment. Most car wash chemicals exhibit different dilution ratios that need to be achieved to be most effective. Also, chemicals are rotated depending on the time of year, or may be completely changed in the case of using a new vendor. As chemicals are changed, the HydroMinder WDP can adapt as well. The chemical dilution is explicitly printed on the lower end, and the lower end can be twisted accordingly to match-up with the required dilution ratio. There is no need to experiment with new tips and/or eductors.

The HydroMinder WDP from Hydro Systems uses a carefully designed seal in the lower end of the pump to ensure chemical compatibility and eliminate system failures. HydroMinder WDP utilizes one pump to handle everything, meaning it is compatible with a wide range of chemicals at every stage of the wash process. The product simplifies the dilution process so that car wash owners can spend more time on improving their business and less time concerned about cleaning performance.

Delivering Cleaner Cars

In North America alone, car wash retailers clean more than 2 billion cars each year.¹⁰ These businesses consume US\$1 billion annually in gross chemical sales and US\$700 million in equipment and parts. With the demand for professional car washes rapidly increasing, the bottom line of the car wash industry is that customers will return if their cars are cleaned quickly and effectively.

Similar to choosing the proper air dryers and tunnel controllers, it's essential to install and maintain the right dispensing equipment. As technology evolves, owners must re-evaluate the equipment being used and choose a chemical dispenser that can keep up with modern industry demands. That means choosing a solution with the right features – including accurate dilution, easy use and maintenance and longer life expectancy. By carefully selecting a chemical dispenser, car wash owners will ensure their business thrives in this rapidly growing industry.

¹⁰ <https://www.carwash.org/for-operators/industry-information>

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