

Worldwide Leader In Advanced Cleaning Systems



## **Daimer's All-About Guide to Pressure Washers**

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# Overview of Pressure Washers

## The Need

To satisfy the growing market for pressure washers around the world, Daimer® offers more than 400 models of Super Max™ and Vapor-Flo® pressure washers.

These pressure washers include machines with electric, gas, diesel, or propane-powered motors. The lines include cold water, hot water, steam and tri-mode models that offer all three temperature options. The equipment is available in a variety of configurations featuring cold water, steam up to 330°F and pressure levels up to 8000 psi. The equipment is ideal for tough jobs like removing grease, oil, graffiti and paint from surfaces, such as house exteriors, walkways, driveways, parking lots, buildings, tools, manufacturing equipment, fences and vehicles.

Daimer® also offers pressure washers for specialty markets, ranging from auto detailers that require low-pressure/high-temperature machines to manufacturing companies that use acid/phosphate systems to pre-treat metals before painting or coating.

## The Products

Super Max™ pressure washers include the entry-level 6000, 7000, and 9000 models, the portable commercial-grade 12000 line, and the stationary industrial-grade 15000 line. The Vapor-Flo® line is unique because the low-flow machines are both heated and powered by electricity, making them ideal for applications requiring a heated machine that doesn't use fuel.

## Basic Technology

Pressure washers use an electric, gas, propane, or diesel motor to force water through a small diameter nozzle. The result is water pressures that can range up to 8000 pounds per square inch (psi), or 650 times the pressure of a standard garden hose.

The force behind that pressure comes from a water pump driven by a fuel-powered engine, an electric motor, or pneumatic (air) pressure. Once the pressure washer is started, water enters the pump and is forced through a high-pressure hose that leads to a spray gun. The pressurized water exits through a metal nozzle attached to the spray gun.

## Pressure Washers Include the Following Components:

### *Water pump:*

This is the heart of a pressure washer and generates the machines' cleaning power. The pumps rely on either fuel-powered engines or electric-powered motors.

### *Power source:*

Many pressure washers employ a fuel-powered engine, which is generally the choice for outdoor use. Gas, diesel, and propane -powered engines are good options. In addition, machines powered by these engines are mobile because they don't need to be tethered to an electrical outlet. Electric-powered motors tend to be more

compact, generate no fumes, are ideal for indoor applications. (Note: fuel-powered machines can be used for indoor applications if you use a long hose that allows the motor and pump unit to reside outdoors while the nozzle is used indoors.)

### *Heating Units:*

These components typically heat cold water using kerosene, diesel, or heating oil. But because these products produce exhaust, their use indoors is limited. For indoor use, consider an electrical-, propane- or natural gas-heated unit.

### *High-Pressure Hose:*

Hoses are generally constructed of wire-reinforced rubber designed to withstand water pressures more than 125 times the pressure of a standard garden hose. Hoses designed for the highest pressures, commonly have two layers of wire reinforcing. The hoses are covered with rubber or thermoplastic -- opt for rubber whenever possible. Some hoses are designated as 'non-marking,' which means if you drag them around a facility, they won't leave marks on floors, walls, etc.

### *Nozzles:*

Pressure nozzles typically come in variety spray patterns:

- 0° produces the thinnest stream and highest impact on the smallest area. This is the nozzle for the toughest jobs.
- 15° creates a small fan pattern and is ideal for jobs like removing paint and old finishing.
- 25° yields a wider fan pattern and is designed for washing and cleaning debris on the ground.
- 40° generates the widest fan and is good for delicate materials and rinsing.
- Steam nozzle designed for dispensing high-temperature wet steam.

## **Daimer Unique Technologies**

Daimer® products offer a number of unique and technologies.

Tri-mode capabilities allow equipment to clean with cold water, hot water temperatures of 180° F to 210° F, or steam temperatures as high as 330° F.

Automatic Shut-Off Technology™ (AST®) is a proprietary technology that shuts down electric pressure washers when they're not in use to preserve critical components. When engaged, the technology shuts off the pump and motor after 30 seconds if the gun is not in use and water is not flowing through the machine. When the pressure washer operator pulls the trigger, the motor and pump go on. This feature is particularly useful for situations in which the power washer operator is using a long hose, say, more than 25 feet, and it is not practical for them to go back and forth to the machine to turn it off during each break. The pumps and motors in standard electric power washers stay active whether or not water is flowing through the system, which can shorten the life-span of these components.

Phosphatizing systems can be used to pre-treat metal surfaces prior to painting or coating. Daimer®'s Super Max™ AF machines use a downstream injection system that applies cleaning chemicals at low pressure and then rinses with water at a higher pressure. With downstream injection the chemicals contact only the injector, high-pressure hose, trigger gun, wand and nozzle -- all components that are easy to protect against corrosion.

For customers seeking low-flow equipment for a mobile car wash or delicate jobs like auto detailing, Daimer® offers hot water pressure washers, such as the .5 GPM Super Max™ 6230SCW and 6120SCW machines. These low-flow, dedicated steam machines are heated with propane and powered by electricity for use indoors and out.

### **For More Information**

Questions and requests for additional information about Daimer® pressure washers can be directed to Matthew Baratta by calling (888) 507-2220.

## Expert Buying Advice

### Key Features to Look for when Buying a Pressure Washer:

#### *Pressure Levels:*

Expressed in psi, low-pressure models start at 750 to 1500 psi and are ideal for light jobs, such as cleaning decks, fences and patio furniture. Lighter pressure is also recommended to prevent scratching delicate surfaces, such as car finishes. Mid-range products generate pressures in the 1500 to 3000 psi range. Higher-pressure products above 3000 psi are ideal for cleaning industrial equipment, stripping paint, and eliminating grease and stains.

#### *Water Flow Rates:*

Expressed in gallons per minute (GPM), the flow rates of low-flow models in the 1.5 to 2.0 GPM range are popular with customers concerned about water usage -- the lower the flow the less water is used. Pressure washers for auto detailing feature flow rates as low as .5 GPM.

On the other hand, higher flow models in the 2.2 GPM to 5 GPM range expel more water and can clean more surface area in less time. Flow rates can reach as high 8 GPM are featured on some Super Max™ cold water models.

#### *Water Temperature:*

Pressure washers offer a variety of water temperatures, ranging from those that use mainly cold water to machines that include their own heating units and produce hot water and steam. Tri-mode pressure washers clean with cold water, hot water temperatures of 180°F-210°F or steam of up to 330°F. Heated pressure washers generally clean faster, thereby reducing water usage, energy and labor. Cold-water only units are best used with approved cleaning agents and detergents.

#### *Power Source:*

The motors that generate the water pressure are powered by either electricity or fuel. Electric motors are ideal for indoor use because they generate no exhaust. However, this type of motor usually generates less power and lower pressure. Daimer's Super Max® 20000 is an exception to this rule: the electric-powered, cold water unit produces up to 6500 psi of pressure.

#### *Heating Source:*

For heating water and steam, pressure washers generally use a burner-coil system that can be fueled by kerosene, diesel, heating oil, or propane. Coil quality is a key consideration when shopping for a heated machine. For less-expensive machines, choose long-lasting stainless steel heating coils. Some, low priced products use more fragile aluminum coils, which are prone to holes and eventual failure. Higher priced pressure washers should have heavy-duty schedule 80 heating coil. For those seeking an electrically heated unit, Daimer offers the Vapor-Flo® 8800.

## Five Questions to Ask Before Buying a Pressure Washer

### 1) Will I need to move the unit frequently?

For applications where mobility is critical, consider machines mounted on wheels or a truck. Also, consider units powered and heated by fuel -- electric-powered units require access to an outlet or portable generator.

Even stationary pressure washers can be made more mobile if you buy a longer hose. Hoses are available in lengths that allow users to work hundreds of feet away from the machine.

### 2) Do I need steam?

High-temperature steam pressure washing machines are the "greenest" option and top choice for degreasing, sanitizing and cleaning applications where you want to limit the use of cleaning chemicals or water. Steam is also the most efficient pressure washing method for appropriate applications: It cleans faster and more effectively, dramatically reducing water flow, water run-off, and labor costs.

But remember that steam is generated by a heating element or coil that requires either electricity or fuel, depending on the technology. Pressure washers heated with fuel oils generate exhaust, which is fine for outdoor applications. For indoor applications, consider electric-heated or natural gas heated units or a purchasing an extra-long hose for a fuel-powered unit.

Read more on pressure washers with a new steam technology at <http://www.daimer.com/super-hot-steam-pressure-washer-equipment/>.

Read about tri-mode pressure washers that offer cold water, hot water and steam in a single machine at <http://www.daimer.com/all-steam-pressure-washers/>.

### 3) How much pressure do I need?

Don't skimp on pressure. Machines offering pressure levels of 750 to 1500 psi are adequate for light jobs and more delicate surfaces. For more demanding jobs and higher productivity, consider pressure washers generating pressure levels of 1500 to 3000 psi. For the toughest jobs, opt for equipment with pressure levels of 3000 psi and above.

### 4) Do I need multiple guns?

For industrial environments, auto-detailing, and other applications where multiple employees will work in close proximity, consider a machine that supports multiple guns

### 5) Is water run-off a concern?

Some businesses, such as carwashes, are closely monitored by the EPA for water run-off. If run-off is a concern for your business or customers, consider a low-flow or steam pressure washer. Low water-flow machines have

flow rates in the .25 to 2.5 GPM range.

Hard-surface cleaning machines provide another option for reducing run-off. These machines clean and extracts waste simultaneously without the water waste associated with conventional pressure washers.



## Product Spotlights

### Car Detailing Machines

Daimer's new Super Max™ 6230SCW and 6120SCW low-moisture pressure washers offer industrial-strength cleaning power that will not damage delicate car surfaces. The machines also minimize water use and the need for cleaning chemicals.

Prior to the introduction of Daimer's steam car wash systems, auto detailing professionals were forced to choose between two less-than-ideal options: Conventional pressure washers and dry steam cleaners.

Conventional pressure washers waste large volumes of water -- up to 5 GPM -- which can result in water emptying down storm drains and EPA fines. To avoid problems, auto detailing companies often have to purchase water capture and re-circulating systems. Pressure washers have another drawback: The equipment exerts pressures of up to 3000 psi, which can damage vehicle surfaces and paint jobs.

Dry steam cleaners do not have enough muscle for tough dirt. The equipment typically offers pressure levels of only up to 100 psi or so, and uses vapor steam that contains only 5% water. Moreover, the machines tend to quickly lose pressure and temperature as time passes. As a result, the machines have a difficult time removing stubborn substances, such as dirt, mud, and road salt. Employees end up constantly wiping by hand, which can result in scratched finishes and poor results.

The Super Max™ 6230SCW and 6120SCW Mobile Car Wash machines address these shortcomings with pressure levels of up to 1000 psi, low .5 GPM flow rates, and steam temperatures of up to 300° F for industrial strength cleaning.

These portable car wash machines are designed to remove dirt, mud, brake dust, bugs, tar, salt, grease, oil and tree sap. The low flow rates make this mobile car wash equipment safe for cleaning engines, wheels, car exteriors and glass.

The 6120SCW is the 110-120V, 60Hz version, while the 6230SCW is the 220-240V, 60Hz option. In addition, 50Hz models of both machines are available for countries requiring this type of motor.

### Metal Preparation Systems

The AF line of phosphatizing systems was engineered to pre-treat metal surfaces prior to painting or coating. The machines are popular with manufacturing and metal fabrication operations. Products range from the mobile entry-level 1000 psi, 3 GPM Super Max™ 12800 AF to the stationary 3000 psi, 5 GPM Super Max™ 15900 AF.

The Super Max™ AF systems employ downstream injection systems that apply cleaning chemicals at low pressure and then rinse using water at a higher pressure. With downstream injection the chemicals contact only the injector, high-pressure hose, trigger gun, wand and nozzle -- components that are easy to protect against corrosion.

These phosphatizing systems include the following:

- A stainless-steel downstream injector with chemical proportioning adjustment.
- Stainless steel fittings and parts from the injector to the nozzles.
- A stainless-steel, dual-lance wand with crossover valve. The wand has one trigger gun and two side-by-side tubes that form the lance. The outlet of one tube has a high-pressure nozzle and the other a low-pressure nozzle. By opening and closing a crossover valve the water flow is directed through either the high-pressure nozzle or the low-pressure nozzle.
- A clear plastic siphon pickup tube with a foot screen exiting the front of the machine to draw chemical directly from a bucket or drum.
- An on/off panel valve for chemical pickup.

## Reseller Programs

Daimer®'s reseller program includes all of the company's more than 400 models of Super Max™ and Vapor-Flo® pressure washers.

Super Max™ pressure washers are available to resellers worldwide. Daimer® works with resellers by:

1. Handling labeling of private labeled machines.
2. Providing specification sheets.
3. Assisting with the choice and configurations of products for special markets, such as those with 230V or 440V, 50 or 60 Hz power requirements.

Requirements:

1. Minimums orders are necessary for involvement in the Daimer® reseller programs.
2. Freight cost will be added to invoices.

Contact Daimer® at (888) 507-2220 to speak with a Product Specialist or email us at [www.daimer.com/reseller-programs](http://www.daimer.com/reseller-programs) and describe your needs.