

Enviromec

High Pressure Cleaning Guide

During the past few decades the use of cleaning equipment in all industries has significantly increased. The provision and technology of providing an efficient cleaning solution is being further developed, and new models are brought into the market every year.

However the basic combination of equipment, detergent, safety and the cleaning method, providing the cleaning solution, remain basically the same.

We hope that this information will provide you with a guide into the cleaning process, using high-pressure water cleaners, sweepers, vacuums and extraction machines.

High pressure water cleaners and basic equipment What is a High pressure water cleaner?

A basic high pressure cleaner consists of a pump driven either by an electric motor or engine. The water can then be heated either by fuel oil, gas or electric. The pump provides the volume of water while the nozzle at the end of the lance creates a high water pressure - rather like pinching the end of a garden hose.

So I presume the more pressure the better?

No. Generally high pressure cleaners work at around 70 to 200 Bar (1000 to 3000 psi) but the volume of water is just as important. Today's machines use around 8 to 21 Litres per minute - too little volume and the cleaning effect (calculated in kW) is simply reduced. Specialist machines of up to 20,000psi are also available.

So what sort of machine do I need?

High pressure cleaners can be approximately split into four main groups;

Cold water high pressure cleaners

Cold water cleaners can be generally adjusted from high to low pressure and detergents introduced by an injector at around 1 to 5%. Cold water cleaners are usually used in agriculture, automotive, building or construction when soiling can be removed by cold water alone. Fats, grease and oils are usually cleaned by hot water.

Hot water high pressure cleaners

A hot water cleaner works basically the same as a cold except the water is heated to up to 100° C in a boiler after it is pumped. The pressure and flow is relatively the same as a cold machine. Although some machines do have a steam stage - the term "steam cleaner" is not strictly true.

Stationary and ring main high pressure cleaners

Stationary or static installations are used where regular cleaning takes place, and the adjustments can be pre-set. A static system also reduces the amounts of trailing cables and hoses, while eliminating abuse by non authorised operators. More than one pump can also be built into the system providing a cleaner for more than one user.

Specialist equipment

Including foaming equipment, brushes, sandblasters, floor cleaners, assorted lances and other accessories that can usually be added to any of the above types of equipment.

"Choosing the right equipment results in faster, cleaner efficient results to satisfy any cleaning requirements."

Detergents: The do's and don'ts Surely I could use any old detergent?

Choosing the right detergent can significantly reduce the time and effort to clean. Detergent can be often carried out in a two step method; Step one - application of the detergent to the surface. Step two -High pressure cleaning and rinsing of the surface.

Then how does a good detergent work?

A good detergent will force in and soak into the dirt, until the high pressure water flushes the dirt and detergent off the surface. The efficient time between is the period between the two. Only dirt that has properly soaked and absorbed the detergent can be efficiency removed, and a suitable good detergent will keep the fat and oil emulsified so that they can be rinsed away.

What sort of detergents are there?

Water based alkaline

The most popular and important detergent used with high pressure water, where natural or synthetic fats represent a considerable part of the dirt.

Water based neutral

Used for light cleaning when the dirt is easily soluble and is holding small amounts of fat and oil, and when hot water or a brush can also be used.

Water based acid

For descaling walls and floors and building renewals, or for descaling process equipment or scale removal especially in the food industry.

Solvent based

While highly efficient for de-waxing cars or cleaning tarpaulins, solvents are often more hazardous and usually less environmentally safe.

Foaming detergents

More often used in food industry, and now increasingly in automotive, air is introduced to give a non-stable foam to remain on the surface, providing a longer contact time.

Methods: The basics on how to clean Hot or cold water?

The more fats or oil contained in the dirt, the more need there is for a higher water temperature when high pressure cleaning. Water soluble dirt can be removed with cold water alone - there is not often any better result when cleaning water soluble dirt with hot water. However when cleaning fats, oils and pigments hot water gives a faster and cleaner result, while using less detergents than with just cold water.

Always use recommended detergents, and read the manufacturers instructions carefully.

A dry surface will absorb detergent far better than a wet surface, however care should be taken in hot weather or conditions as the detergent can dry onto the surface - if in doubt wet the surface first.

Always do a test area first, and if there is a large area to clean - then do part of it at a time so that the detergent does not dry on.

Start at the bottom and work upwards

Do not apply detergent from the top down. If you begin from the top the detergent will run down and form channels down the surface, and will cause streaking or lines on the surface.

Make sure you rinse off any detergent thoroughly, to ensure all the detergent has washed away, otherwise some detergents can leave marks on the surface.

"Careful planning of each job and the correct use and selection of the right detergent will save time and money"

Guide to the Environment



Safety and the environment, how to protect yourself and others

Care should be taken to plan any job in hand. Discuss the cleaning with other people on the site, and arrange the working area so it is safe. Choose the right equipment after careful consideration and instruct any operators on the use of equipment and the need to work in a safe environment.

Wear suitable protective clothing - remember some detergents are hazardous.

Check the Data sheets for chemicals you are using and use the safest product possible.

Test the equipment before use and never use defective equipment that hasn't been serviced.

High pressure cleaning can cause an aerosol - any hazard will float in the air longer.

Always find out where the soiled water is going to drain to. Remember waste water can contain, solids, particles, sand, oils, solvents or fats etc. Ensure that there is adequate facilities to treat any waste water.