

HIGH PRESSURE CLEANING – DANGERS AND PROTECTION

Hearing in danger

A high pressure cleaner makes a lot of noise and loss hearing will come creeping up on you. When you are exposed to 97 dB(A) for more than 10 minutes a day you risk reduced hearing. You must wear ear protectors right from the start of your work. Choose a kind that effectively dampens high frequency noise. The ear protector must fit tightly to the ears.

If you use earmuffs you must be aware that glasses, hair and cap can keep prevent a tight fit. This diminishes the effect. Ear protectors must be maintained and the sound dampening material in the earmuffs must be changed regularly in order to provide full protection.

Some ear protectors dampen noise in all frequency areas and still make it possible to hear what is said, to hear signals etc. Some of them are equipped with radio or a plug for an mp3 player.

Ear protectors must be used as long as the high pressure cleaner is used. Even small periods of time can affect your hearing dramatically.

At a sound frequency of 2.000 Hz the effective dampening will be reduced from ca. 40 dB(A) to ca. 20 dB(A), if the ear protectors are only used for 99 % of the time.

Duration of use	100 %	99 %	98 %	95 %	90 %
Effective dampening, dB	40	20	17	13	9

Bull's eye

A high pressure cleaner whirls dirt into the air and aerosols are formed that go into your eyes and irritate – or in the worst case – injure them.

Always use goggles or a full mask. The best solution is a turbo breathing mask with a detachable screen. The screen will get dirty while you work, but it can be cleaned with a couple of pumps from a spray bottle. The screen can be changed during breaks.

High pressure cleaning requires more light (minimum 200 LUX) than the light level needed for supervising livestock.

Eye protection must be used when you work with cleaning agents or disinfectants.

Aerosols are tiny bits of solid matter like bacteria, fungus, chemicals, dust from plants and animals, mites, soil, and rust. All encapsulated in microscopic drops of water. The water makes them go deeper into the lungs than they would have done as dry matter.

Breathing under attack

Dust and aerosols hang in the air – up to one and half hours after the high pressure cleaner has been turned off. Aerosols go straight into your respiratory system and with their content of proteins and micro organisms from manure, feedstuff, livestock and soil they can cause a row of more or less disabling diseases: toxic alveolitis, asthma and allergic alveolitis, as well as various chronic respiratory diseases. You don't feel the damage at once. But your lung function is diminished fast, see figure 1.

SAFETY! THE RESPONSIBILITY OF THE EMPLOYER AS WELL AS THE EMPLOYEE

The employer must purchase and maintain personal protective equipment for the employees. The employer must instruct the employees in the use of the personal protective equipment and he must control that the employees actually use the equipment.

The personal protective equipment must be appropriate for the task in hand and it must fit the individual employees. The protective equipment is personal.

The employee must use all necessary personal protective equipment – and use them for the full duration of the task. If the equipment is defective he/she must inform the employer.



Cleaning houses for broilers.

BUILD YOUR WAY TO EASIER CLEANING

If you are going to renovate or build new livestock housing you have the possibility of building easier cleaning into your future system. You can do this through:



Stationary compressors should be placed in a sound proofed room with an air exhauster. This causes less noise.

- Stationary compressors, to supply the individual washing sites. The advantage is less noise because the compressor can be placed in a closed room.
- Ample water pipes, that can transport large amounts of water – prepare for later extensions.
- Soaking systems in two parts (for pig housing):
1) A piping system over the living areas where the jets change between shower jets and 360 degrees soaking jets.
2) A piping system over the rest areas with 360 degrees soaking jets so feed and water pipes can be cleaned, too.
- LED-lighting with variable light intensity or light in two net-works where one is for daily / normal use and the other with bright light for cleaning. Fluorescent tubes and motors for ventilation must be water tight.
- Prevention of blind angles to keep you from holding too many stretched positions and to minimize the need for manual cleaning after the washing robot has finished.
- Sluicing systems (are integrated in some rotolactors and milking parlours).

- A back plate in parallel milking parlours prevents the cows from letting manure into the milking lane.
- Automatic roll-up for hoses eases the work since the hose will not lie loose on the floor.

Choose smooth surfaces

Apart from this, cleaning can be made easier and more effective by as often as possible choosing materials with smooth surfaces on floors and equipment. Dirt can be removed easier and with a lower water pressure. Plastic, steel, flat bars and surface treated concrete are such cleaning friendly materials.

Details with effect

Finally a line of simple details can help to remove what prevents easy and effective cleaning:

- Pipe ends must be closed.
- Gate handles must be made of smooth metal
- Threads must not poke out.
- Foundations under mangers must be even – mangers without foundations force the cleaner to crawl.
- Blind corners must have smooth transitions in order to limit back spray.
- Side strengtheners can be made of flat bars with smooth surfaces.



A stationary high pressure cleaner makes washing easier.

BEFORE YOU BUY A HIGH PRESSURE CLEANER

You can save money through a few simple considerations before you buy a high pressure cleaner. Ask yourself the following questions:

1. Can the time you now spend on high pressure cleaning be spent better on other work?
 - Maybe it pays to let professionals take care of the big cleaning tasks, so that you will only have to take care of the smaller ones.
2. Would it be financially wise to invest in a cleaning robot?
 - Cost accounting for this investment can be found – and the robot might be shared with another farmer.
3. Could exchanging and buying new accessories (gun/lance/jets) be put instead of buying a new high pressure cleaner?
 - Technical developments in this area has been concentrated on the accessories and new technical developments that can be used with your existing high pressure cleaner could be a good idea if the high pressure cleaner basically works well.
4. Would a longer hose with perhaps a different diameter and turn clutch ease the work?
 - A longer hose gives the cleaner a bigger radius. The diameter can be adjusted to prevent the hose from getting stuck on the slats. Turn clutches prevent the hose from curling up.



This handle does not require much finger pressure to activate the high pressure cleaner. This relieves the muscles of the lower arm. It can be used with other brands. Note the short lance that makes it possible to clean in narrow places.



There are various kinds of accessories on the market adapted to various cleaning tasks. The result is better comfort.

WHEN YOU BUY A HIGH PRESSURE CLEANER

As owner of a high pressure cleaner you have the responsibility for how it is used – this includes the accessories. This means that you must:

- Make sure that the right type of high pressure cleaner and accessories are used for the task in hand.
- Make sure that the high pressure cleaner is used correctly.
- Maintain the equipment in order to make sure that it is always safe to use, clean and repair.

You can take on this responsibility check the following in connection with the purchase:

- Is the high pressure cleaner CE-marked?
- Do the instructions show the uses the high pressure cleaner is constructed for and which it is not constructed for?
- Do the instructions inform about all risks and are there any instructions for how to avoid these?

- Are the instructions sufficient: correct assembling, installation, start procedure, use, adjusting, cleaning, maintenance and repair?
- Do they include data on noise and vibrations in relation to marginal values?
- Are the instructions in Danish?
- Are all warning signs visible and easy to understand?

Apart from a “yes” to these questions you should make the supplier demonstrate how all safety precautions work. If you find a breach in safety you must inform the supplier fast.

Perform an unbiased study of the high pressure cleaners on the market before you decide. Don't let your heart or your purse make the choice for you. Prioritize safety and comfort.

Comparison between the working environment factors of different high pressure cleaners

	An example	Company: Model:	Company: Model:	Company: Model:
Max pressure, bar.	200 bar			
Max amount of water per minute	40 l pr. minute			
Is the water led directly to the lance or through the pistol?	Directly to the lance			
The motor rotations are increased gradually so the recoil is low from the out start?	Yes			
Variable adjustment of the amount of water on the lance?	Yes			
Variable adjustment of the work pressure on the lance?	Yes			
Chemicals are only absorbed in low pressure mode?	Yes			
Can extra and varied lances be purchased?	Yes, different lengths, angles, single and double			
Is the gun pressure relieved so the safety clutch is easy to hold?	Yes			
Is a heat exchanger included in order to ensure that washing at 30°C can take place?	Yes			
Can special lances for cleaning feed pipes, ceilings and ventilation be purchased?	Yes – for pipes			
Is the protective shield (handle and 1-2 m hose) effective at the pressure level where the work takes place	Yes			
The size of the high pressure cleaner – can it get through doors and corridors?	Yes			
Other important factors	The company provides a good service			
Price excluding VAT				

MORE KNOWLEDGE

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This guide has been written on the basis of tests, surveys and Danish legislation



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