



Vapormatt



White Paper

Protecting workers from Hand-Arm Vibration Syndrome (HAVS)

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Introduction

A huge number of industries rely on manually operated tools that emit vibration during use. As a result of using vibrating machinery workers are sometimes at risk of being overexposed to hand-arm vibration. This guide explores the risk of hand-arm vibration in wet blasting and explains how to prevent workers from developing hand-arm vibration syndrome (HAVS).

What is hand-arm vibration syndrome?

Hand-arm vibration syndrome is a painful and disabling permanent health condition that is caused by prolonged exposure to vibration through the use of hand-held or hand-guided equipment that vibrates. It has previously been known in industry as vibration white finger.

There are a number of symptoms that HAVS can be identified by, this includes: tingling and numbness in the fingers; loss of strength in the hands; and fingers going white and becoming red and painful on recovery.

The damage caused by HAVS can't be underestimated. This damage can be measured in not only a physical sense but also psychological and in terms of career prospects. Those that do develop HAVS can struggle to complete certain tasks, ultimately leading to them being unable to continue in their current employment capacity.



The regulations

The Control of Vibration at Work Regulations 2005 (the Vibration Regulations) came into force in 2005 with the purpose of protecting workers that operate vibrating machinery from the adverse effects of vibration.

The Vibration Regulations require employers to:

- Control the risks from vibration
- Provide employees with information, instruction and training on the risk and the actions being taken to control risk
- Provide employees with suitable health surveillance.

As part of the regulations, the exposure limit and action level for HAVS and are outlined. These are:

- The maximum level of vibration that an employee can be exposed to per day is 5 m/s² A(8).
- The daily exposure action value is 2.5 m/s² A(8). No control measures are required when an operator experiences vibration below this level.

How can HAVS occur from wet blasting?

Modern wet blast machinery can and should be designed so that there is no risk of a worker developing HAVS. However, through not following guidelines and safety advice there have been examples of HAVS developing in employees, just as it does in other surface treatment and finishing techniques where machinery is incorrectly used.

In wet blasting, a small part is often (incorrectly) held with one hand while the other hand operates a wet blasting gun that blasts the part. The issue, which many employers fail to recognise, is not so much the vibration emitted from the wet blasting gun, but instead the vibration from the part being wet blasted, which is absorbed by the hand holding it. In fact, new wet blasting technology complies with vibration regulation, but poor practice and incorrect use leads to overexposure to vibration and the resulting development of HAVS.

How can employers protect employees?

Although the Vibration Regulations provide valuable general guidelines and highlight the importance of protecting employees from risks to health from vibration, they do not outline specific methods that can help ensure HAVS is prevented. However, there are a number of options that should be considered that can ensure the Vibration Regulations are complied with and employees are protected.

The first step, which is essential, is to conduct a risk assessment for all tasks in which vibrating machinery is operated, even if vibration emissions seem minimal. Once the risk assessment has been conducted and highlights the risk to an employee, employers can then set in place a set of rules for the operation of vibrating machinery.

One such rule is to monitor and control how frequently and for how long an employee is operating the vibrating equipment. While working on a manually operated wet blasting machine may be harmless for a certain number of hours, naturally over usage for prolonged and regular periods will increase the likelihood of harm, as it would with the over usage of any vibrating machinery.

This is especially true of older manually operated equipment, which may emit a higher volume of vibration than newer counterparts. Employers are advised to identify the age of equipment as they may not be fit for purpose in terms of vibration emission, even though they complete a task perfectly adequately.

Some employers have opted to move away from manually operated wet blasting machines and are investing in automated alternatives. The Vapormatt Sabre, for example, is a fully automated wet blasting solution that not only offers exceptionally fast process times but also requires minimal interaction with employees – who are therefore at no risk of developing HAVS. However, for those employers that do not require the fully automated version, they can instead utilise jigs, which hold parts in place for the wet blasting process. This means employees are only exposed to the controlled vibration from the wet blasting gun.



Conclusion

Hand-arm vibration syndrome may not be at the top of the list of priorities for employers, but with the threat of employees developing HAVS and having the legal right to claim compensation it is in the best interest of all parties that employees are protected. The best way to do this is by conducting an in-depth risk assessment and introducing measures that comply with regulations and prevent over-exposure to vibration.

Further information



For further information and advice on HAVS visit:
www.hse.gov.uk/VIBRATION/hav/index.htm

How can employees further protect themselves?

In the past there has been great emphasis placed on the importance of personal protective equipment (PPE) for preventing the negative effects of vibration, such as anti-vibration gloves. However, the true effectiveness of PPE in protecting workers from vibration is not clear, which is why employees are advised not to rely on PPE. Instead, employees must protect themselves in other ways, such as: ensuring they are not operating vibrating equipment for long periods; holding vibrating equipment as loosely as possible; paying attention to machine safety messages – for example, many wet blasting machines feature cautionary messages that draw attention to vibration exposure –; and raising issues with supervisors if they have any concerns.

One important factor for employees to bear in mind is that although it is relatively easy to measure the vibration emissions of a machine, it is notoriously difficult to reliably measure the amount of that vibration has been absorbed by a person's hand. For example, an employee who holds a part tightly will absorb more vibration than an employee who holds the same part loosely; so despite the part emitting the same level of vibration, the two employees would not absorb the same amount of vibration.

Exposure Points System

Vibration magnitude m/s²	40	800																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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- Above exposure limit value
- Likely to be at or above limit value
- Above exposure action value
- Likely to be at or above action value
- Below exposure action value

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