

Hand-Arm Vibration

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INTRODUCTION

This guidance document outlines what employers will need to do to protect their employees from the risk of Hand-Arm Vibration Syndrome (HAVS), sometimes referred to as Vibration White Finger (VWF).

Its purpose is to help you understand and identify when exposure to Hand-Arm Vibration may cause harm to your employees. It takes a practical approach to controlling the risks and will help you understand what you need to do to comply with the Control of Vibration at Work Regulations 2005 (the Vibration Regulations).

WHAT IS HAND-ARM VIBRATION?

Vibration can be described as the rapid back-and-forth movement of physical particles as a reaction to different forces which is transmitted into workers' hands and arms during repetitive work.

It is usually generated in power tools and plant that have reciprocating parts or percussion action such as hammer drills, breakers, rammers, scabblers, hand-held floor grinders and leaf blowers. Common machinery found in road marking operations, such as walk behind spray machines, tend to be much lower, but still emit vibration.

Hand Arm Vibration Syndrome is an industrial disease which can have a catastrophic effect on an employee's occupational health in the same way noise and chemical hazards can. Vibration related injuries are divided into three subgroups:

- Neurological disorders (such as Carpal Tunnel Syndrome (CTS))
- Vascular injuries
- Musculoskeletal injuries (such as arthritis or tendinitis).

Regular exposure causes permanent changes in sensory perception in the extremities which can lead to tingling and numbness of fingers. This makes operating machine controls difficult and more dangerous, and everyday actions like fastening buttons or picking up a cup of tea distressing. It can also lead to loss of strength in the hands which might affect the ability to do work safely. In extreme cases, the fingers can turn white (blanching) and becoming red and painful on recovery, reducing ability to work in cold or damp conditions, e.g. overnight shifts in colder seasons.

When symptoms first appear they may disappear after only a short time, though they can worsen and become permanent if exposure continues over months but in most cases, this happens over a few years.

IT'S THE LAW

The Vibration Regulations require you to:

- Make sure that risks from vibration are controlled
- Provide information, instruction and training to employees on the risk and the actions being taken to control risk
- Provide suitable health surveillance

The Vibration Regulations include an exposure action value (EAV) and an exposure limit value (ELV) based on a combination of the vibration at the grip point(s) on the equipment or workpiece and the time spent gripping it.

The exposure action and limit values are:

- a daily EAV of $2.5 \text{ m/s}^2 \text{ A(8)}$ that represents a clear risk requiring management; and
- a daily ELV of $5 \text{ m/s}^2 \text{ A(8)}$ that represents a high risk above which employees should not be exposed.

DUTIES OF MANUFACTURERS AND SUPPLIERS OF VIBRATING EQUIPMENT

Manufacturers (and suppliers) have a duty under the Supply of Machinery (Safety) Regulations 2008 to provide health and safety information in equipment handbooks including vibration measurements which is normally shown in m/s^2 . They should also issue guidelines on maintenance and offer training, where appropriate.

Many manufacturers will quote figures in ideal conditions i.e. a brand-new machine with sharp or new consumables whereas in reality, the condition may be very different. Consequently, these figures should only be relied on as a guide as real-life testing will enable more accurate measurements of vibration magnitude.

IS THERE A HAVS PROBLEM IN ROAD MARKING?

During road marking operations, the EAV is not likely to be exceeded, however, operators who use certain tools and equipment will be at higher risk.

Higher Risk – exposure likely to be *above* 5 m/s^2 (ELV) if not vibration damped:

- Leaf Blower
- Heavy Duty Hammer Drill / Breaker
- Hand Held Floor Grinder
- Scabblers
- Trench Rammers
- Air Dryers

As an indication, an operator is likely to reach or exceed the EAV of 2.5 m/s^2 using a non-damped hammer drill in as little as 15 minutes and ELV of 5 m/s^2 in under an hour.

Lower Risk – exposure likely to be *under* 2.5m/s² (EAV) with good vibration damping

- Floor Grinders
- Paddle Mixer
- Graco Line Lazer 98:2

CONTROLLING THE HAVS RISK

You should consider undertaking the following actions to control the risk of HAVS within your business:

1. Assess who is likely to be at risk
2. Ask if any employees already have symptoms of HAVS or CTS. For those that do, you should take immediate steps to remove them from any exposure that could worsen their condition
3. Look at the actions below to determine who is using vibrating equipment, how long they use the tools for, and do they feel tingling or numbness after extended periods of use.

INTRODUCING CONTROL MEASURES

- If possible, find another way of doing the job without using vibrating equipment – engineer the problem
- Keep a modern fleet of tools and equipment and selecting those with vibration damping that have low or very low vibration levels, ideally under 5m/s²
- Maintaining your tool fleet with regular servicing programmes and replacing tired, old machines that have high vibration levels (worn bearings etc.)
- Make sure operators use sharp tools, inserts and blades. They do not have to be new
- Keep hands warm and dry in cold conditions
- Discourage smoking
- Introduce job rotation, plan work schedules where possible, to reduce daily 'dose'.

DISABILITY IS PREVENTABLE

By introducing control measures, the Employer can fulfil their duty to reduce the risk from vibration to the lowest level that is 'reasonably practicable' and to reduce exposure if it is above 2.5m/s². Exposure must not exceed 5m/s² in any working day.

Prevention of HAVS is possible providing you comply with the Vibration Regulations and have an effective surveillance programme in place.

Certain cases of HAVS and all cases of vibration-related CTS must be RIDDOR reported to the HSE.

EDUCATION

It is important that you inform your employees of the risks associated with using vibrating tools and how they can help themselves by making simple decisions like choosing low vibration tools, finding an alternative and safe way of doing the job, and being able to spot the symptoms early and report them to management.

This can be means of a simple 'Tool-Box' talk which many manufacturers are happy to support industry with free of charge. They will learn how to get the best from the equipment without needing to exceed the EAV or ELV, about grip force, contact pressure, and the importance of selecting the correct consumables. The RSMA has also developed a HAVS 'Tool-Box' talk in this HAVS suite of documents for members to deliver themselves.

You can also share your plans of what the business is doing to reduce the risk and that by having Health Surveillance you are taking their welfare seriously, not only enabling them to remain at work but also lessen any impact HAVS can take on their personal life.

HEALTH SURVEILLANCE

You must provide health surveillance when exposures are at or above the EAV and in other circumstances where there is risk, for example, after diagnosis of HAVS and exposure continues but below the EAV.

This can take the form of a simple questionnaire but must, however, involve a competent occupational physician after any symptoms are reported. They should be appropriately qualified and be able to provide you with feedback for each employee under the programme including fitness for work with HAV.

You must also have access to anonymised health surveillance results (unless groups are too small to facilitate it) and be informed of any new or deteriorating cases of HAVS that are being diagnosed provided you have that person's consent.

The aim is to keep your skilled workforce in work and prevent disability by taking prompt action to monitor and revise your control measures when finding new cases or worsening of existing cases.

WHAT NEXT?

You now need to decide if the steps you have taken are enough and what additional actions need to be taken to minimise the risk in your workplace.

The HSE website is a good source of information if you are still unsure – www.hse.gov.uk