



Vibration Standards

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1. Introduction

The purpose of these standards is to ensure our employees are not exposed to excessive vibration at work that could have adverse effects on their health, in particular from Hand-Arm Vibration Syndrome, Carpel Tunnel Syndrome or Raynaud's Disease. Vehicle drivers and plant operators could suffer from back injury from whole body vibration.

Operatives on our construction sites and in our manufacturing operations are exposed to vibration and could suffer the effects of vibration, if it is not managed correctly.

They suffer from back pain as a result of whole body vibration caused by the shaking or jolting of the body through the seat of a vehicle when driving or riding along an unmade road or operating earth-moving machines.

They could also suffer from health issues because of using powered hand tools or equipment that vibrates when being used.

2. Vibration related diseases

Hand-arm vibration syndrome (HAVS)

Employees who regularly are exposed vibration equipment may suffer reduced blood circulation to the nerves and muscles. This is noted by a tingling feeling or numbness in the fingers, in more advanced cases, finger blanching can occur, this is often referred to vibration white finger. The damage is permanent and not reversible.

Carpel tunnel syndrome (CTS)

CTS is a condition that has the potential to affect any employee that uses powered hand tools or equipment that vibrates when CTS is where pressure on a nerve in the wrist causes pain and numbness in hands and fingers. Symptoms of CTS include pain, numbness, tingling or weakness in your fingers, hand or arm.

Raynaud's disease

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Raynaud's Disease affects circulation, it causes some areas of the body, like fingers and toes, to change colour when a person is cold or stressed.

3. Vibrating tools procedure

The following equipment is a potential source of tool vibration, this list is not exhaustive:

- Jack Hammer
- Orbital sanders
- Plate compactors
- Rotary hammer drills
- Reciprocating saws
- Masonry or steel cut off saws
- Grinders
- Chisels
- Nail guns
- Concrete pokers
- Chipping hammers

4. Vibrating tools risk assessment

Where there is risk of exposure to a potential source of tool vibration we must assess the vibration risk and take action to reduce vibration exposure that produces those risks.

During this assessment process we must evaluate whether employees are likely to be exposed above the:

Daily exposure action value (EAV)

This is the level of daily exposure, which if exceeded requires action to reduce it. A daily EAV of 2.5 m/s² A(8) represents a clear risk requiring management. The greater the exposure level, the greater the risk and the more action we must take to reduce the risk.

The exposure limit value (ELV)

This is the maximum amount of vibration an employee may be exposed to on any single day. A daily ELV of 5 m/s² A(8) represents a high risk above which employees should not be exposed. We must ensure our employees are never exposed above the ELV from vibrating hand tools.

Calculating exposure values and limits, exposure points system and ready-reckoner

Once it has been identified that an employee is using vibration tools as a first step the HSE Hand-arm vibration exposure 'ready reckoner' or calculator must be used for assessing whether a tool is likely to expose an employee above the EAV or ELV.

If exposure has been identified as above the EAV or ELV then task specific risk assessments must be completed to introduce control measures to reduce the risk of ill-health as a result of exposure to vibration to as low as reasonably practicable. This could include:

- Consider whether the task can be done without using vibration tools;
- Use a lower vibration tool that brings the exposure below the EAV or ELV;
- Obtain accurate on tool vibration data by assessing the vibration of the tool when in use;
- A tool management and maintenance programme;

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- Vibration specific information and training to employees on health risks and the actions we are taking to control these risks and how they can use the tools safely;
- Health surveillance where there is a risk to health.

5. Whole body vibration procedure

Most exposure to whole-body vibration at work is unlikely on its own to cause back pain. It may pose a risk when there is unusually high vibration or jolting or the vibration is uncomfortable for a long time on most working days. In such situations, the risk from vibration is related to the overall time the operator or driver is exposed to the vibration and the number of shocks and jolts they experience each day.

The following machinery is a potential source of whole body vibration, this list is not exhaustive:

- Earth moving machines such as scrapers, bulldozers and site dumpers.

6. Whole body vibration risk assessment

Where there is risk of exposure to a potential source of whole body vibration we must assess the vibration risk and take action to reduce vibration exposure that produces those risks.

During this assessment process we must evaluate whether employees are likely to be exposed above the:

Daily exposure action value (EAV)

This is the level of daily exposure, which if exceeded requires action to reduce it. A daily EAV of 0.5 m/s² A(8) represents a clear risk requiring management. The greater the exposure level, the greater the risk and the more action we must take to reduce the risk.

The exposure limit value (ELV)

This is the maximum amount of vibration an employee may be exposed to on any single day. A daily ELV of 1.5 m/s² A(8) represents a high risk above which employees should not be exposed. We must ensure our employees are never exposed above the ELV from whole body vibration.

Calculating exposure values and limits

Exposures may be high where one of the following is present:

- Machine or vehicle manufacturers warn in the machine/ vehicle handbook of risks from whole-body vibration;
- The machines or vehicles that are being used are unsuitable for the tasks for which they are being used (check the handbook or ask the supplier);
- Operators and drivers are using poor techniques, eg driving too fast or operating the machine too aggressively;
- Employees are operating or driving, for several hours a day;
- Employees are being jolted, continuously shaken or, when going over bumps, rising visibly in the seat;
- Vehicle roadways or work areas are potholed, cracked or covered in rubble;
- Road-going vehicles are regularly driven off-road or over poorly-paved surfaces for which they are not suitable;
- Operators or drivers report back problems.

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If exposure has been identified as above the EAV or ELV then task specific risk assessments must be completed to introduce control measures to reduce the risk of ill-health as a result of exposure to vibration to as low as reasonably practicable. This could include:

- Use a lower vibration machine that brings the exposure below the EAV or ELV;
- Vibration specific information and training to employees on health risks and the actions we are taking to control these risks and how they can use the machines safety;
- Health surveillance where there is a risk to health.

7. On-going vibration monitoring procedure

Health surveillance

An employee must undergo initial health screening and have regular assessments with our health-monitoring provider if they use vibrating tools or machinery as part of their work and exposure has been identified as above the EAV or ELV, which cannot be reduced below these levels by reasonably practicable control measures.

Initial health screening also known as a baseline assessment is carried out by the employee completing a health screening questionnaire for workers using vibration tools or equipment. It is the responsibility of the Line Manager to ensure all employees who will use vibration tools or equipment as part of their role complete the questionnaire either as part of the recruitment process or as soon as possible when they commence employment. This questionnaire to be returned directly to the HS&E Department Administrator for review and any additional action.

Refer to HSMS form [068](#) – HAVS Health Screening Questionnaire

Vibration monitoring of existing tools and machinery

Existing tools and machinery that has the potential to cause a vibration related injury must be monitored in line with the manufacturer's guidance. If no guidance can be sourced, a trained professional should carry out independent vibration monitoring; this should be done at regular intervals.

If during the monitoring the equipment is deteriorating through age or wear and tear, then it must be removed from service until repaired. If it is not cost effective to repair then it must be rendered unusable.

New equipment

When new equipment is procured, the manufacturer's vibration information must be checked to ensure that for the task intended to be used for, does not result in an employee being subjected to unacceptable levels of vibration. The local HS&E Advisor must be consulted for specific advice when purchasing new vibration equipment.

Vibration register and HAVS calculator

Where an employee is regularly using vibration tools or machinery that is likely to result in exceeding the daily EAV then Line Managers must ensure that employees are completing a daily vibration register at the end of each working day. This must then must be reviewed by the Line Manager and steps taken to reduce vibration exposure levels below the EAV wherever possible. If employees are using more than one vibrating tool daily then Line Managers must ensure that a HAVS calculator is used before an employee uses any subsequent vibrating tools to ensure that they are not being exposed to levels of vibration above the EAV. The HAVS calculator to be

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reviewed by the Line Manager and steps taken to reduce vibration exposure levels below the EAV wherever possible. If the Line Manager identifies that an employee is exceeding the ELV then the employee must be given further training on the hazard of vibration and reducing exposure and vibration tool usage closely monitored.

8. Monitoring

To protect our work force from vibration injures we must ensure that we are checking the vibration levels of equipment and ensuring that our workers are not exceeding the limits. This is easily achieved through good supervision, management and monitoring the workforce. The Group HS&E Department, will assist with any risk assessments and any further monitoring that may be required, they will also carry out spot checks on tool management/ maintenance records and vibration registers.

9. Further reading

HSMS [guidance](#)- Vibration ready reckoner and calculator

<https://www.hse.gov.uk/vibration/hav/index.htm>

10. Toolbox Talk

Refer to HSMS [TBT](#) - Vibration

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