

5-step Approach to Assessing Hand Arm Vibration Risks

If your employees are at risk from hand/arm vibration, you will have duties under the Control of Vibration at Work Regulations 2005. Here, the four most important requirements are: (1) risk assessment; (2) eliminating or minimising exposure; (3) health surveillance and (4) training. To assess vibration risks, follow the steps below.

Step 1 – Check if you have a Vibration Hazard

You should regard your employees as at risk, and take action under the Vibration Regulations, if you tick any of the following:

- Employees use rotary action power tools for more than about an hour per day.
- Employees use hammer-action power tools for more than 15 minutes per day.
- HAVS (Hand Arm Vibration Syndrome) is known to be a problem in your industry or sector.
- You have any of the industrial processes for which HAVS is reportable (for example, regular use of percussive or vibrating tools).
- Any of your equipment suppliers warns of a vibration risk.
- Any of your employees has symptoms of HAVS.

Step 2 – Identify All Workers Likely to be Exposed

Consider specifically those who:

- ✓ Spend most of the day working with vibrating machinery.
- ✓ Use power tools regularly, but for short periods, such as fitters and maintenance staff.
- ✓ Have a widely varying vibration exposure from day to day (e.g. some construction workers).
- ✓ Might be at special risk because they already have circulatory or nerve problems (people with diabetes would be an example of the former).

Step 3 – Evaluate the Risk and Implement Safeguards

The action you need to take depends on vibration levels, which are expressed as 'acceleration', measured in metres per second per second (m/s^2) and averaged over an 8-hour working day (A(8)). Your assessment **may** need to include measuring the vibration but don't assume this is necessary; it depends on whether you can get enough data from other sources, for example, tool/equipment manufacturers. But you'll certainly need to benchmark against the action and limit values which are set in Reg. 4 as follows:

- Daily exposure limit value = $5 m/s^2 A(8)$
- Daily exposure action value = $2.5 m/s^2 A(8)$.

Look at exposure level and time for each at-risk employee and compare it with the values above. To help, you can access a ready-reckoner and vibration calculator at www.hse.gov.uk/vibration/hav. When working out exposure duration, you only need to count the actual time spent in contact with the vibrating tool: this is likely to be much less than the hours worked. But if the employee is exposed to several sources, make sure your assessment takes all of them into account.

Whatever your levels, you have a **general duty to eliminate or reduce** vibration exposure. But you must get below the limit value, and also below the action value if it's reasonably practicable to do so. If your assessment shows employees are at risk from vibration, or they're likely to be exposed at or above an action value, you must provide health surveillance to pick up any early signs of ill health (Reg. 7) and give them information, instruction and training (Reg. 8). There's no requirement here for continuous monitoring of vibration levels, but you should check that whatever measures you introduce are followed in practice.

Equipment that vibrates is usually noisy too, so consider at the same time the need to protect your workers from noise-induced hearing loss.

Step 4 – Capture your Findings

Your assessment must be 'suitable and sufficient': inspectors are likely to want to see you've:

- ✓ Identified where there may be a risk from HAV.

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- ✓ Made a soundly-based estimate of your employees' exposures and compared it with the 'action' and 'limit' values.
- ✓ Listed the available risk controls.
- ✓ Identified individuals who may be at special risk (for example, because they're known to already have a problem).
- ✓ Detailed the steps you are taking to control and monitor the risks.
- ✓ Recorded your assessment in writing.

Step 5 – Review the Assessment and Revise it as Required to Keep it Up to Date

If you change tools, equipment or work patterns this will affect your assessment and you should update it accordingly.

How to Eliminate/Minimise Exposure in Practice

You can reduce the risk by reducing exposure time (for example, by job rotation). This means sharing out the work so that no one person has a high exposure to vibration. Labelling tools ('do not use for more than 10 minutes at a time') will support this. Gloves can help too: they may reduce vibration, but mainly they work by keeping the hands warm, which in turn helps maintain a good blood circulation.

In practice, though the most important thing you'll need to do is reduce vibration levels at the tool or equipment itself. HSE's L140 guide (www.hse.gov.uk) recommends the following practical ways of doing this, in descending order of effectiveness:

- Eliminate the use of vibrating tools or equipment by introducing mechanisation or alternative, vibration-free processes. For example, on one construction project, engineers redesigned concrete pile caps so that they did not later need to be cut off using high-HAVS risk pneumatic tools: this saved time/money and removed the hazard at source.
- Reduce vibration exposures by modifying the existing process. Examples include using digger-mounted hydraulic breakers instead of hand-held ones and finishing metal components in a grinding machine instead of with hand-held grinders.
- Replace power tools with suitable modern, efficient, ergonomic, vibration-reduced types through an effective purchasing policy (ensure 'low-vibration' is part of the purchasing specification).
- Select appropriate consumables (e.g. better-balanced and fitted grinding wheels) and replace them promptly when required.
- Provide employees with training, information and instruction on safe use of tools and equipment and ensure adequate supervision.
- Carry out maintenance of tools and equipment and replace consumables, as recommended by the manufacturer.
- Minimise the forces needed to operate and control the tools (e.g. use tensioners, balancers, jigs, fixtures to reduce the need to support, hold and direct the tool).

The Regulations see employee awareness as a key plank of control; they therefore make information, instruction and training mandatory: see the box below for the key messages to get across to your at-risk workers:

Key Messages for Employees at Risk of Vibration Injury

- ✓ Always use low vibration tools: the right tool for the job will help you work more quickly and expose you to less vibration.
- ✓ Check tools before using them: bluntness, faults or general wear all increase vibration.
- ✓ Avoid using a vibrating tool continuously for a long period: do other jobs in between if you can.
- ✓ Avoid gripping or forcing the tool or work-piece.
- ✓ Store tools so that they do not have very cold handles when next used.
- ✓ Encourage good blood circulation: keep warm/dry and massage your fingers during breaks.
- ✓ Give up or cut down on smoking because smoking reduces blood flow.
- ✓ Report any problems with your hands promptly (tell people who they should speak to).
- ✓ Use any control measures put in place to reduce the risk of HAV.