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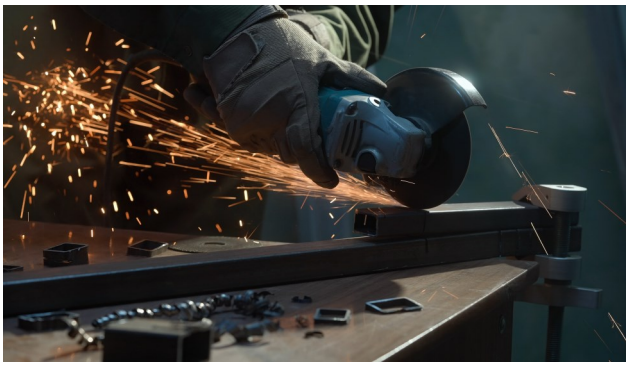
BAD VIBRATIONS
HAVS

BAD VIBRATIONS — HAND ARM VIBRATION SYNDROME (HAVS)



It is important to be aware that HAVS or Hand-Arm Vibration Syndrome which comes from the use of hand-held vibrating power tools can be the cause of significant and long-term ill health. You need to recognise this and take action to protect yourself and your workforce now.

Hand arm vibration syndrome or HAVS is serious and disabling, and nearly 2 million people in the UK are at risk. It is a health hazard that can affect workers who use vibrating tools repeatedly.

The condition is also known as vibration white finger or dead finger. HAVS is caused by repetitive trauma from vibration which can damage the nerves, blood vessels and joints in the hands, wrists and arms, the resulting damage can be permanent! A related condition called Carpal Tunnel Syndrome (pressure on wrist nerves) whilst caused differently can give similar symptoms and long-term problems too

The threat of HAVS, while a relatively recently recognised hazard, has a very significant impact on those affected by it. Hand arm vibrations can affect anyone that uses power tools for a prolonged period of time. Workers can suffer ill effects from HAVS for many years after white finger occurs.

Taking you and your employees' safety seriously and addressing HAVS can put a stop to the condition occurring, avoiding the long-term, life-limiting, ill-health implications.

The Health and Safety Executive (HSE) figures show that HAVS remains a serious, but entirely avoidable debilitating condition. It is an incurable condition that cannot be reversed. In the UK during 2023 there were 215 new (additional) cases recorded as well as a further 115 new cases of carpal tunnel syndrome. Mining, construction and manufacturing are the sectors where HAVS and Carpal Tunnel Syndrome are recorded.

A BSIF campaign on behalf of the safety industry for the benefit of the UK workforce, supported by:

Safety Groups UK · BOHS · SSIP · CIOB · nebosh · ALFED · British Safety Council · iosh · SIMPL · iirsm · BPF · TUC · Composites UK · Chartered Institute of Ergonomics & Human Factors · RoSPA accidents don't have to happen

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What and where are the Hazards?

Anywhere that uses work equipment that causes vibrations to transfer from the piece of equipment through to your hand, arm and the rest of your body. Non-exhaustive listing of the most common industrial areas are:

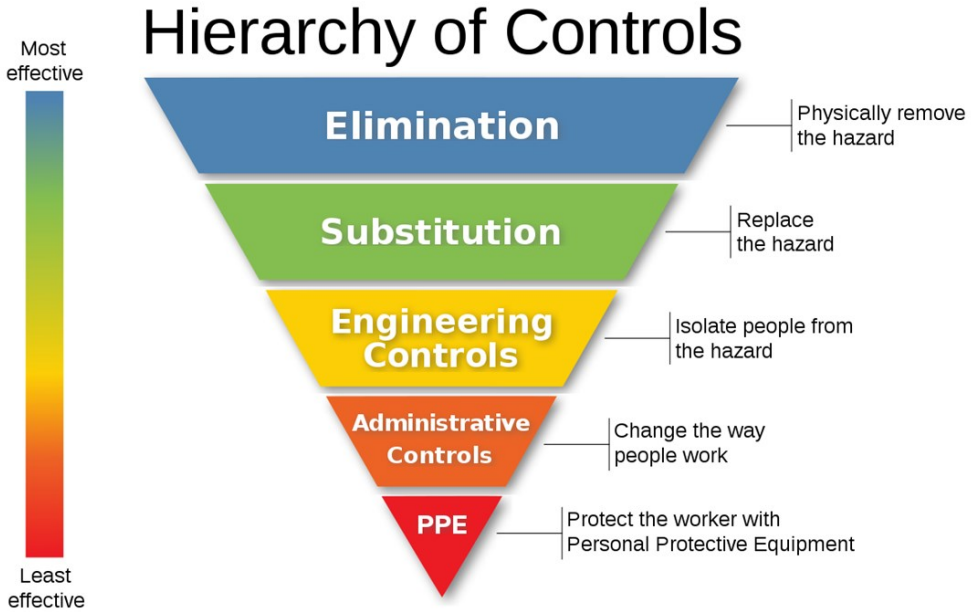
- Construction
- Engineering
- Mining
- Forestry
- Steel Fabrication
- Shipbuilding

10 Potentially hazardous hand-held tools and equipment that can cause HAVS:

- Road breakers/Demolition hammers
- Hammers drills/combi hammers
- Needle scalers
- Angle grinders
- Hammers/Pneumatic hammers
- Chainsaws
- Sanders
- Impact wrenches
- Drills
- Mowers

How do you control the hazard and protect yourself and/or your workers?

To control the risk you need to know what the hazard is. Under the Health and Safety At Work Act 1974 Duty Holders and Employers are obliged to appoint a competent person to carry out a risk assessment and find out if there is an issue. If the assessment finds the risk of exposure to HAVS exists then effective controls must be employed to limit exposure to vibrations. The hierarchy of controls shown below, is aimed at reducing exposure to harmless levels:



As with other types of workplace hazards, these actions promote ways of eliminating or reducing the hazard so that using PPE/Safety equipment is not necessary.

1. Look at alternative ways to eliminate the hazard
2. If not then look at different, less hazardous ways to undertake the task
3. Utilise well-maintained low-vibration equipment – measure exposures or automise completely
4. Training and work schedules to avoid or limit exposure, which must be measured
5. PPE and or Safety equipment /devices

If these steps outlined above are not practicable there are PPE and Safety products available.

What types of PPE, safety measures and equipment are available?

1. Vibration measurement equipment placed upon the hazardous equipment. These would primarily be used by a Duty Holder to define the level of risk. They can also be used to monitor exposure for workers with HAVS. Continual monitoring is not a requirement of the regulations but it can be a way to monitor on going exposure for workers who have HAVS or CTS but who want to continue to work at a safe level.

2. Vibration monitoring equipment worn on the hand or wrist for assessing the risks and identifying effective control measures.

3. Anti vibration gloves tested to ENISO 10819:2013 (testing does not cover low frequency/damaging levels of vibration). In general these are very limited in application as PPE for HAVS. If a duty holder wants to use anti -vibration gloves they should look at Appendix 4 of L140 HSE Guidance on Regulations. It explains what to ask an anti-vibration glove supplier, for example: will the product work with the tool and the process the workers will undertake?

4. Warm clothing. Low hand or body temperature increases the risk of finger blanching because of the reduced blood circulation. Therefore it is essential to ensure that employees working outdoors in cold weather have adequate protection to keep warm.

Further help/guidance on measurement and monitoring in standards:

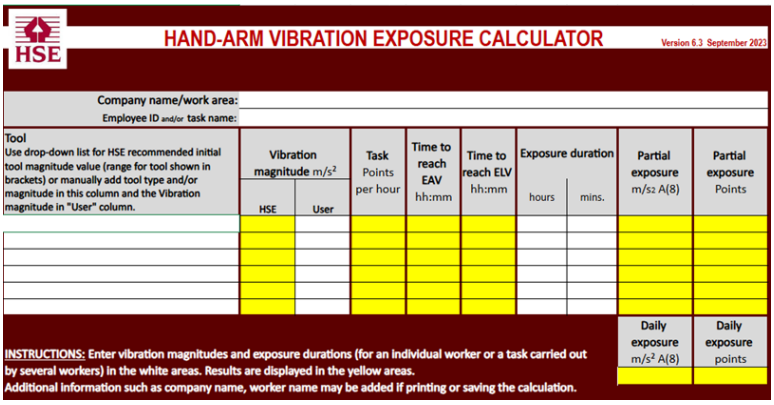
BS EN ISO 8041-1:2017 specifies the performance specifications and tolerance limits for instruments designed to measure vibration values, for the purpose of assessing human response to vibration. It includes requirements for pattern evaluation, periodic verification and *in-situ* checks, and the specification of vibration calibrators for *in-situ* checks. Instrumentation should meet the specification for the measurement of hand-transmitted vibration as given in this standard.

BS EN ISO 5349-2001

This part of the mechanical vibration standard covers measurement and evaluation of human exposure to hand-transmitted vibration/practical guidance for measurement at the workplace.

HSE guidance on The Control of Vibration at Work Regulations 2005 contains a useful hand-arm vibration exposure calculator (Appendix 1 of L140*). This can be used in conjunction with the HSE Ready-reckoner to ascertain vibration exposure data points, both shown on the following page. (See full guidance link **)

HSE Ready-reckoner for vibration exposure points (See full guidance link)**



HAND-ARM VIBRATION EXPOSURE CALCULATOR

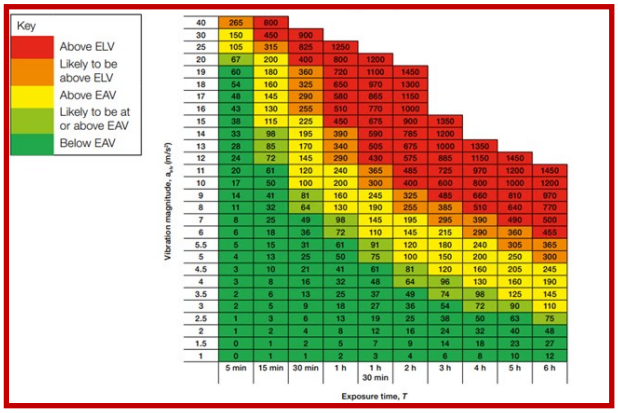
Version 6.3 September 2023

Company name/work area:

Employee ID and/or task name:

Tool Use drop-down list for HSE recommended initial tool magnitude value (range for tool shown in brackets) or manually add tool type and/or magnitude in this column and the Vibration magnitude in "User" column.	Vibration magnitude m/s²		Task Points per hour	Time to reach EAV hh:mm	Time to reach ELV hh:mm	Exposure duration		Partial exposure m/s2 A(8)	Partial exposure Points
	HSE	User				hours	mins.		
								Daily exposure m/s² A(8)	Daily exposure points

INSTRUCTIONS: Enter vibration magnitudes and exposure durations (for an individual worker or a task carried out by several workers) in the white areas. Results are displayed in the yellow areas.
Additional information such as company name, worker name may be added if printing or saving the calculation.



Key: Red for exposures above the ELV (Exposure Limit value) green for exposures below the EAV (Exposure Action value) yellow for exposures between the two.

Finally, some basic but vital points to remember:

- Develop a safety program to keep workers safe whilst understanding that good safety is good for business.
- Always look for and use low vibration versions of power tools
- Always maintain tools properly and in line with the manufacturer's instructions
- Easy to understand guidance on reducing hazards before you look for PPE.
- Links to support on prevention, available options and generic guides to safety products/selection and training
- HAVS is preventable, but once the damage is done it is permanent.
- HAVS is serious and disabling, and nearly 2 million people are at risk.
- Damage from HAVS can include the inability to do fine work and cold can trigger painful finger blanching attacks.
- The costs to employees and to employers of inaction could be high.
- There are simple and cost-effective ways to reduce or eliminate the risk of HAVS.
- The Control of Vibration at Work Regulations focus on the elimination or control of vibration exposure.
- The long-term aim is to prevent new cases of HAVS occurring and enable workers to remain at work without disability.
- The most efficient and effective way of controlling exposure to hand-arm vibration is to look for new or alternative work methods which eliminate or reduce exposure to vibration.

Health surveillance is vital to detect and respond to early signs of damage.

Resources to aid better understanding of HAVS and associated Carpal tunnel syndrome:

- Hand-arm vibration at work: A brief guide
- Hand-arm vibration - Advice for employees
- Vibration solutions: Practical ways to reduce the risk of hand-arm vibration injury - HSE
- https://www.hse.gov.uk/vibration/hav/advicetoemployers/measurement-monitoring.htm
- *Use the hand-arm vibration exposure calculator
- **The HSE Control of Vibration at Work Regulations 2005 Download a free copy - L140(PDF)
- Independent report Hand-arm vibration syndrome and assessment of vibration exposure. https://www.gov.uk/government/publications/hand-arm-vibration-syndrome-and-assessment-of-vibration-exposure/hand-arm-vibration-syndrome-and-assessment-of-vibration-exposure

For further help and guidance from BSIF, please email: enquires@bsif.co.uk

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