

Hand Arm Vibration Policy

Hand and Arm Vibration Management and Control Policy

Humphrey and Stretton PLC will demonstrate that with regards to the managing of the risks associated with Hand and Arm Vibration, it will:

- Identify and assess sources of risk.
- Prepare a control system for preventing, reducing, or controlling the risks.
- Implement and manage and monitor precautions.
- Maintain suitable and sufficient records of the precautions implemented and will carry this out for each of Humphrey and Stretton PLC premises within their control.
- Will appoint a person to be responsible for the management and maintenance of the control system and measures adopted.

The Directors have the day-to-day responsibility for the implementation of these procedures to ensure, as far as is reasonably practicable, the safety of employees.

The management has a statutory duty to ensure that compliance is active, continuous, and effectively policed.

Humphrey and Stretton PLC will be able to demonstrate if it has:

- Identified all the relevant factors.
- Implemented the appropriate corrective or preventive actions, and
- Is monitoring the effective implementation of the required solutions.

HAND-ARM VIBRATION (HAV)

The term "Hand and Arm Vibration (HAV)" is the collective name for a range of injuries caused by hand transmitted vibration.

This includes damage to blood circulatory systems and sensory nerves in the fingers, weakened muscle in the hands and painful joints in the hands and arms.

It is most commonly associated with blood circulatory disease known as Vibration White Finger (VWF).

All incidences of HAV are reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR).

The condition usually arises from regular and long-term exposure to hand transmitted vibration.

The early symptoms of VWF are tingling, numbness in the fingers during and immediately after working with such things as hand held tools.

Continuing exposure to HAV may lead to development of susceptibility to finger blanching attacks.

The blanching attacks are triggered by changes in ambient temperature and do not necessarily occur whilst using the tool, unless working in cold or wet conditions.

The magnitude, frequency, duration, and transmission of the vibration are important factors in the relationship between the exposure to vibration and the development and severity of symptoms.

These conditions are affected by the employees' well-being and physical condition.

Smoking heavily can have detrimental effects on the worker if he needs to operate vibration inducing hand tools, as can other conditions such as Diabetes or neurological disorders.

The tools with the potential to cause or exacerbate HAV usually operate in low frequencies. They include, but are not limited to:

- Pneumatic hammers and drills, both percussive and rotary grinders, these include the use of cutting discs as well as grinding
- Percussive metal working, needle guns, chipping hammers
- Bench saws and bench grinders
- Strimmers and power saws

These tools operate in similar fashions in that there are three separate axis along which the tool and the hand of the operator can travel, referred to as x, y and z axis.

These represent the up and down, side to side and backward and forward movements of the hand.

The tools, through the described axis, all deliver impact to the user's hand. It is the transmission of this impact, which has the potential to cause injury.

EXPOSURE LIMITS AND ACTION VALUES

Hand-Arm Vibration

Daily Exposure Limit Value is $5 \text{ m/s}^2 \text{ A}(8)$

Daily Exposure Action Value is $2.5 \text{ m/s}^2 \text{ A}(8)$

The daily exposure limit value (ELV) is the maximum amount of vibration an employee may be exposed to on any single day.

The daily exposure action value (EAV) is the level of daily exposure to vibration above which you are required to take certain actions to reduce exposure, (see section on Elimination or Control of Exposure to Vibration contained within this document.

RISK ASSESSMENT

The risks from vibration can be controlled and employees can be protected from ill health caused by vibration.

To protect employees, and to comply with the Vibration Regulations, employers need to assess the risks from vibration and plan how to control them.

The purpose of the risk assessment is to evaluate the likelihood of a hazard occurring, the severity of its outcome and plan for its control.

For the purpose of this guidance document, likelihood refers to:

Tools, equipment, machinery, and processes that generate levels with a magnitude (level of vibration at the hand position on the tool, handle, work piece etc.) of 2.5m/s^2 A(8)

And severity refers to:

Exposure time (the time for which the employee's hand is actually in contact with the vibrating tool)

The employer needs to look at whether they have a problem to manage, and if they answer YES to one or more of the following examples, then they should assume that their employees are at risk from vibration, and must take steps to reduce their exposure:

HAV

- Use rotary action power tools or machines for more than an hour per day?
- Use hammer action power tools for more than 15 minutes per day?
- Work in an industry where HAVS is known to be a problem?
- Work with any of the industrial process for which HAVS is reportable?
- Equipment suppliers warn of a vibration risk?
- Employees have symptoms of HAVS?

If there is a problem to manage, then the next step is to identify the employees at risk and determine their daily vibration exposure with enough accuracy to establish who is likely to be exposed at or above the following:

HAV Exposure action value (of 2.5 m/s^2) or Exposure Limit Value (of 5 m/s^2).

A programme of assessing and reviewing the vibration levels of existing equipment is ongoing and is carried out by the external Health & Safety Consultant using appropriate measuring equipment.

Humphrey and Stretton PLC should inform the external Health & Safety Consultant of any existing equipment which has not been assessed, or when they have any new machinery/plant or equipment which requires measurement, (ideally this should be at the trial stage).

An assessment of the actual work undertaken, the vibration measurements and any recommendations will be reported back to the Directors of Humphrey and Stretton PLC.

The Directors of Humphrey and Stretton PLC should inform the Health & Safety Consultant of any modifications made to the assessed equipment or changes to work processes, where a review assessment can be undertaken, otherwise they will be reviewed every 3 years.

ELIMINATION OR CONTROL OF EXPOSURE TO VIBRATION

The measures, which need to be considered following a risk assessment in order to eliminate or reduce the effects of hazardous vibration, are as follows:

- Elimination or Substitution
- Purchasing policy
- Engineered Controls
- Procedural Controls
- Ergonomic Factors
- Reduction in exposure
- Information, instruction and training
- Personal Protective Equipment
- Health Surveillance

The most effective and reliable way of eliminating the risk from vibration is to design (or redesign) the work process, so that employees are not exposed to vibration at all.

Where vibration exposures are above the exposure limit value, this approach is sometimes the only way of adequately controlling the vibration risk.

Elimination or Substitution is aimed at avoiding or minimising operations, together with the use of tools which expose employees to hazardous vibrations and should always be the first choice.

Where elimination of exposure cannot be achieved, consideration should be given to the introduction of vibration-reduced tools or processes or the following engineering controls:

- Product design
- Process design and control
- Mechanisation
- Equipment selection and maintenance

Similar consideration should be given, where applicable, to the substitution of cutting bits, abrasives, and other consumables used in conjunction with these tools.

Information on the specifications and performance of such tools and consumables should be obtained from the manufacturer.

Practical examples of elimination and substitution are given in HS (G) 170 'Vibration Solutions'.

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SELECTION OF TOOLS, MACHINERY, CONSUMABLES

Consideration should not only be given to tools, but also to consumables and host materials, which can also contribute towards the cause of injury.

Possibly the most effective control is a robust purchasing policy which prevents excessive exposure, prior to any persons coming into contact with machinery that may cause vibrations.

Where possible, Humphrey and Stretton PLC should use its buying power to put pressure on the manufacturers to produce low vibration equipment.

The Supply of Machinery (Safety) Regulations 1992 (as amended), require that manufacturers, importers, and suppliers of vibration-emitting machinery must:

- design and construct such machinery so that the risks resulting from vibration and other sources are reduced to the lowest level, taking account of technical progress and the availability of means to reduce them
- provide information to warn of any residual risks, i.e., risks that could not be adequately reduced by design
- provide information/instructions accompanying hand-held/hand-guided and mobile machines on vibration emissions which reach or exceed 2.5 m/s^2 (this value is the vibration emission of the equipment/machine and not the daily vibration exposure of the operator.
- It should not be confused with the exposure action value of $2.5 \text{ m/s}^2 \text{ A}(8)$.

A purchasing specification should incorporate maximum vibration magnitudes and test procedures, that suppliers have to satisfy.

Manufacturer's data should, however, be regarded with some caution, as they may not necessarily be measurements of levels sustained when the equipment is put to the intended use.

Prior to purchase, ideally any new equipment should be taken on trial and identified to the Health & Safety Consultant for assessment of the vibration levels.

Where this is not possible, the following list suggests some possible questions to ask Manufacturers/Suppliers.

Is the vibration of any handle or other surface in contact with the user likely to exceed a RMS (Root Mean Squared) acceleration of 2.5 m/s^2 for HAV?

- What is the frequency-weighted RMS acceleration?
- Under operating conditions producing the highest vibration?
- Under typical operating conditions?
- Under other standard conditions?
- Under what operating conditions were the measurements made?
- What measures have been taken to reduce vibrations?
- Are additional vibration reduction measures practicable?
- What is the maximum RMS frequency-weighted acceleration that the tool or equipment can be guaranteed not to exceed?
- What tests have been carried out to confirm any claims made in answer to last question?

Humphrey and Stretton PLC's policy addresses the identification, assessment and subsequent purchase or leasing of tools and machinery, and recognises the potential harm such tools and machinery can cause the workforce, therefore should include reference to:

- The identification of potential hazards associated with the use of tools, machinery, and equipment and ranking in terms of their contribution to the hazard
- Assessments of existing tools, machinery, and equipment, identify & evaluation of possible solutions in terms of practicability & cost.

- The provision of vibration control measures
- The establishment of purchasing guidelines and controls
- Engineering Controls

Some tools have devices fitted to them to minimise the level of vibration generated.

Additional sleeves made from a foam compound material can be fitted to the barrel of the tools mentioned in order to provide thermal protection, but a reliance on these sleeves as a control measure for vibration would be misguided.

Selection of tools and machinery (including information received from suppliers)

- When assessing the tools or machinery required to carry out the work, consideration must be given to any potential exposure to vibration
- Supplier's or in-house vibration level information must be considered prior to selection
- The supplier should provide information regarding vibration levels, but these may have come from values declared by the manufacturer.
- These measurements are usually undertaken in artificial test conditions and may underestimate the vibration likely to be produced in real use. The supplier should be asked for a value (or range of values) which represents the likely vibration for the equipment or tool when used in circumstances similar to the work to be undertaken by the employee.

The vibration information used to estimate vibration exposures should have been measured on tools or machines similar to the ones being used and in broadly similar operating conditions.

- Ideally vibration information should be for the specific equipment (make and model) that is planned to be used.
- Where possible machinery will be used on trial and assessed by the Health & Safety Consultant prior to purchase
- Tools suitable for the job, with the lowest vibration levels will, as far as possible, be chosen on all occasions
- Where exposure to vibration cannot be avoided, the maximum levels of exposure must not be exceeded without instigating control measures

Selection of consumables such as abrasives, cutting-bits etc.

- Consumables will be manufactured to British Standards
- Low vibration accessories will be selected and suppliers asked to supply vibration levels/readings

- Blades and cutting bits will be used only for the purpose for which they were intended, grinding discs for grinding, cutting discs for cutting, etc.
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INSPECTION AND MAINTENANCE OF EQUIPMENT

Any equipment used which causes vibration will be inspected on a regular basis to ensure the equipment is:

- Well, maintained
- Correctly balanced
- Free from worn or loose parts
- Used only with sharp blades/cutters

The user will carry out a visual inspection on the equipment before use and on a regular basis.

Any faulty equipment must be reported, and where necessary, labelled and taken out of service until repaired or replaced.

It is important that up-to date equipment records are held, detailing the service history, any vibration or acoustic testing and copies of any certificates required.

Portable Appliance Testing will be carried out on a regular basis.

The frequency of these inspections will be determined by the nature and frequency of use, and also by current HSE guidance on the testing of portable appliances.

Records of these inspections will be held centrally and locally.

MONITORING OF RISK VIBRATION LEVELS – TRAFFIC LIGHT SYSTEM

The risk assessment will identify whether exposure levels are exceeded.

We quantify this by defining levels of risk, High [Red], Medium [Amber], or Low [Green]

Green [Low Risk]

Up to 2.5 m/s² (reaching up to 100 points) over an 8-hour day

Amber [Medium Risk]

Up to 5.0 m/s² (reaching up to 400 points) over an 8-hour day

Red [High Risk]

Will reach 5.0 m/s² (400 points) in less than 8 hours

PERSONAL PROTECTIVE EQUIPMENT

It is important to keep the hands and body warm in order to maintain good blood flow especially to the fingers and reduce the risk of injury. Hands should be kept warm and dry by providing additional pairs of dry gloves.

Anti-vibration gloves are not usually considered effective at reducing the frequency-weighted vibration associated with the risk of HAV. Unless they are specifically matched to vibration characteristics of the particular work, they can increase the vibration at some frequencies.

HEALTH SURVEILLANCE

Health surveillance is having procedures in place to detect work-related ill health at an early stage, and acting on the results. The main aims are to safeguard the health of employees and check the long-term effectiveness of the control measures.

Hand-arm Vibration

In the case of hand-arm vibration, one of the specific aims is to prevent employees developing an advanced stage of hand-arm vibration syndrome (HAVS) associated with disabling loss of hand function.

It is possible that employees who are exposed to vibration may have mild symptoms of HAVS. Health surveillance can help them to recognise the first symptoms if they have started to develop.

Employees should be encouraged to recognise and report symptoms early so that controls can be introduced or reviewed to prevent symptoms developing further.

Procedure for New Employees

New employees who as part of their duties will be likely to use vibratory tools must complete a health screening questionnaire before taking up employment.

The questionnaire will be assessed by the Health & Safety Consultant, and where deemed necessary they may be asked to see the outsourced Occupational Health Providers.

Procedure for Existing Employees

Existing employees who use vibratory tools may be subject to health surveillance based on risk.

If no symptoms are reported on the screening questionnaire, no referral will be made, although the HSE recommend that after 3 years a vibration-exposed employee reporting no symptoms, should be referred for a consultation with an outsourced Occupational Health Nurse to provide an opportunity to explore more fully any possible symptoms, which an individual may have overlooked.

Where symptoms have been reported the employee will be referred.

The outsourced Occupational Health Physician will carry out a medical examination and formal diagnosis. The employer will then be advised of the employee's fitness for work, confirming whether any action has to be taken to reduce exposure.

In certain circumstances the employee may be referred to by the Occupational Health Physician to a Specialist.

Recommendations

Where a reduction in exposure to vibration has been recommended, the Service will require the employee to keep a record of the vibrating equipment used and the actual time of its use.

The recommended daily levels of exposure must not be exceeded.

Therefore, Humphrey and Stretton PLC should keep and monitor the employees' exposure records.

Further health surveillance questionnaires/medical examinations may be conducted at intervals as advised by the outsourced Occupational Health Provider.

Records

Humphrey and Stretton PLC will retain copies of all medical reports, exposure records, pre-employment, and annual Health Surveillance Questionnaires within their confidential Employee Personal Files.

The Outsourced Occupational Health Provider will retain all Health Surveillance Questionnaires and medical reports regarding any employee who is referred to them.

As soon as an employee is referred to the Outsourced Occupational Health Provider a copy of the referral or report will be forwarded to the Director responsible for Health and Safety.

TRAINING AND COMPETENCE

Provision of instruction, supervision, information, and training

All employees or agency employees must receive induction training. This training must include instruction and information on HAV where relevant.

Instruction and training on the use of any equipment will be provided by a competent person.

Training records for all staff will be maintained and updated as necessary.

Information on the maximum exposure levels for the whole range of relevant equipment will be provided for all staff.

Staff will be adequately supervised by the relevant senior member of staff.

Refresher training will be carried out regularly.

Induction Training

Employees – Operatives

Employees, particularly power tool operatives, need information about the hazard and what they should do to reduce the risk. Information and training should be given on:

- The hazard and signs of injury
- The need for reporting vibration exposure symptoms promptly
- The need to report any equipment defects promptly

Ways to minimise risk including:

- ⇒ How to grip tools properly for safe operation
- ⇒ The need to maintain good blood circulation by warming up before starting work in cold environments – blood circulation will be maintained by keeping warm while working
- ⇒ Exercising fingers
- ⇒ The benefits of stopping or cutting down on smoking

Refresher Training

Refresher training should be undertaken regularly

Records

Records of all training should be retained, to allow for future review of control measures and verification of compliance with relevant statutory duties and should include:

- Course by: title, trainer, content and date
- Attendance by: employee name, job title,

Competent Advice

Training, vibration assessments and health surveillance should be arranged through the Health & Safety Consultant

Signature	_____
Name	Dave Humphrey
Position	Director
Date	13/10/2021