

Hand Arm Vibration Guidance



What is Hand Arm Vibration?

Hand Arm Vibration (HAV) is vibration transmitted into the hands and arms of operatives that are using mechanical hand-held power tools while carrying out work activities.

The **negative health effects** can be grouped into:

- *Vascular*
- *Neurological*
- *Muscular / Soft tissue damage*

A combination or singular case within any of the above groups is referred to as Hand Arm Vibration Syndrome or HAVS.

Why talk about HAVS?

- 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.
- 1 Million workers are exposed to high levels of vibration, of those 460,000 are estimated to be working in construction.
- Approximately 800 cases of HAVS are reported every year.

Carpal Tunnel Syndrome / Vibration White Finger

Medical conditions associated with continuous use of vibrating hand-held machinery are:

Vibration related **Carpal Tunnel Syndrome (CTS)**

This condition occurs in the wrist due to swelling and pressure in and around the tendons. Dexterity could be affected and it causes a great deal of pain.

Vibration white finger (VWF)

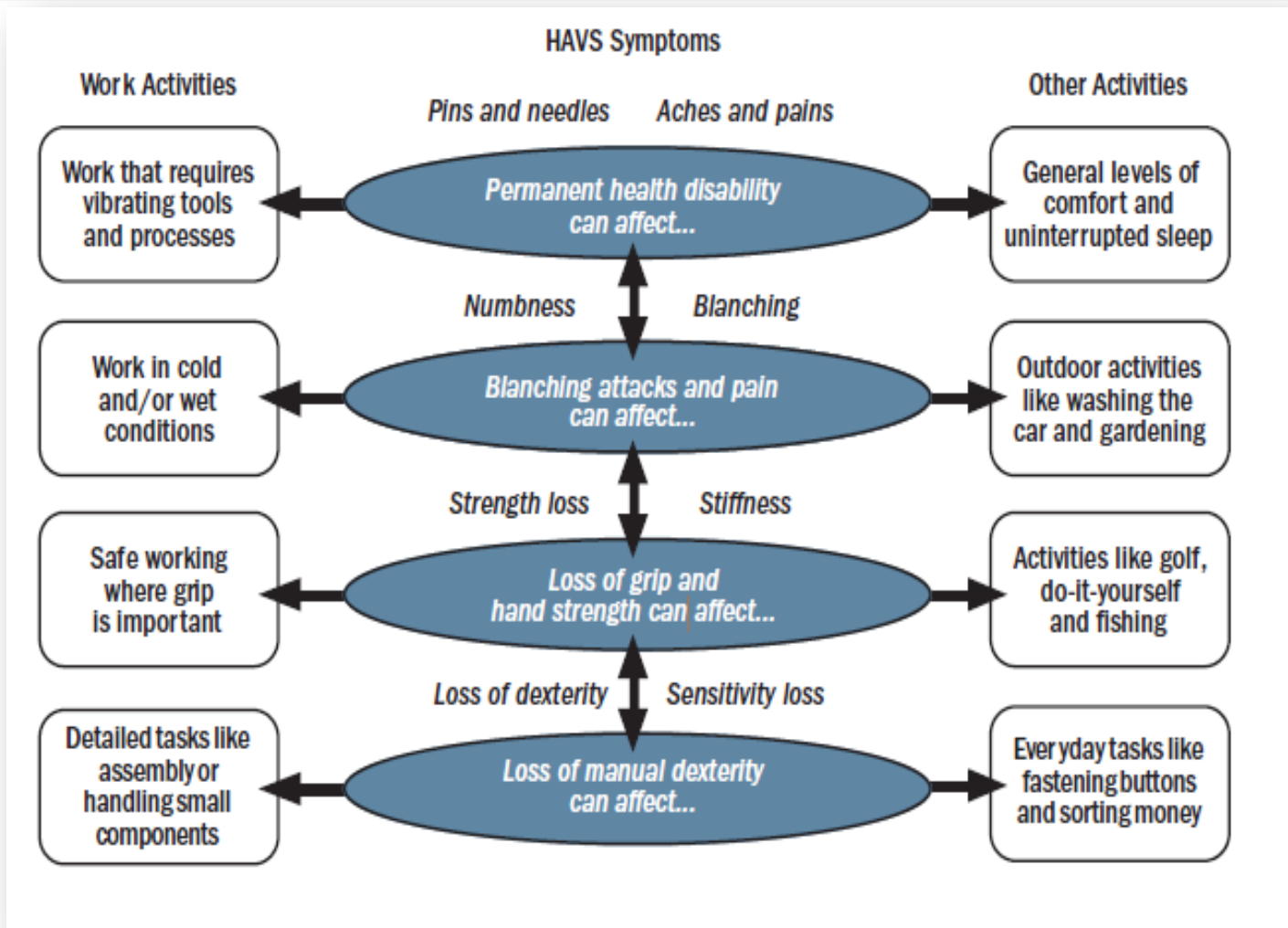
This condition is a secondary form of Raynaud's syndrome. Early symptoms include numbness and tingling of the fingers; in the cold and wet, the tips of fingers go white then red and pain is suffered on recovery.

Early Symptoms

- **Blanching** of fingers / hand from impaired blood circulation.
- Nocturnal numbness and paraesthesia (“pins and needles”) in the fingers except for the little finger which can disturb sleep.
- Not being able to feel things with your fingers.
- Loss of strength in your hands; an inability to pick up or hold heavy objects.



Work Activities Vs Symptoms



Who is at Risk?

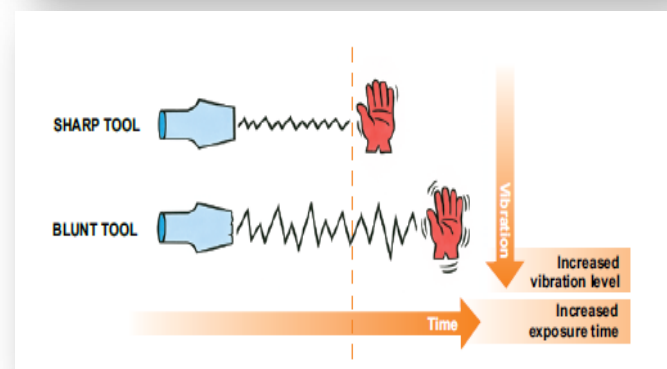
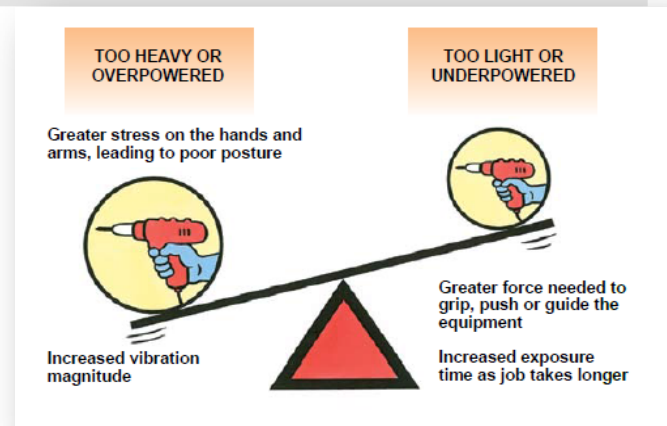
You could be at risk if you regularly use hand-held or hand guided power tools and machines such as:

- Concrete breakers
- Drills
- Wackers
- Sanders, grinders, disc cutters
- Chipping hammers
- Chainsaws, brush cutters, hedge trimmers
- Powered mowers



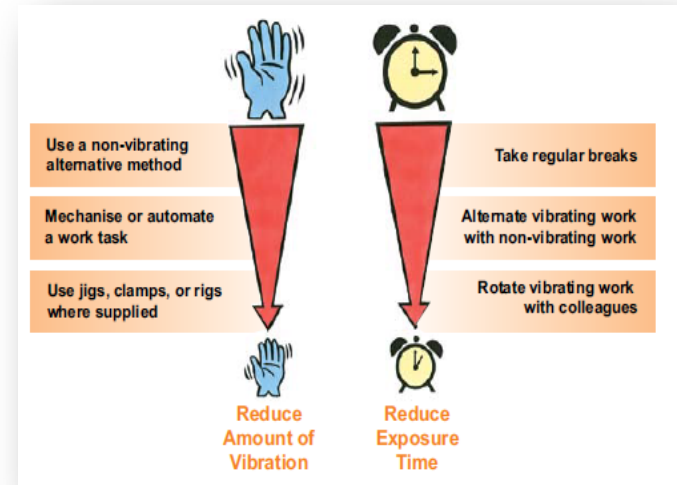
How to Minimise the Risk

- ✓ Use suitable low-vibration tools.
- ✓ Always use the right tool for each job (to do the job more quickly and reduce exposure to hand-arm vibration).
- ✓ Check tools before use to ensure they have been properly maintained and repaired to avoid increased vibration caused by faults or general wear.
- ✓ Ensure cutting tools are kept sharp so that they remain efficient.



How to Minimise the Risk

- ✓ Reduce the amount of time you use a tool in one go, by doing other jobs in between.
- ✓ Avoid gripping or forcing a tool or workpiece more than you have to.
- ✓ Store tools so that they do not have very cold handles when next used.



How to Minimise the Risk

Encourage good blood circulation by:

- ✓ Keeping hands warm and dry; wear gloves and or use heated pads if available.
- ✓ Give up or cut down on smoking to improve your blood circulation.
- ✓ Massage and exercise your fingers during your breaks.



What else Can I Do?

- ✓ Learn to recognise the early signs and symptoms of HAVS.
- ✓ Report any symptoms promptly to your line manager/supervisor or a representative within the Group SHEQ Department.
- ✓ Remain compliant with the control measures that have been put in place to reduce the risk of HAVS.
- ✓ Ask for advice from Human Resources and the Group SHEQ Department if in any doubt.

Remember

Once you have had symptoms of HAVS, you will always be at a greater risk.

Inform your line manager/supervisor as soon as you suspect any symptoms.



Vibration Exposure – The Law

Exposure Action Value (EAV)

Set at **2.5 m/s²**, this is the level of daily HAV exposure that an operator can be subjected to before specified actions have to be taken.

If this level is likely to be exceeded, a number of risk control measures must be considered such as:

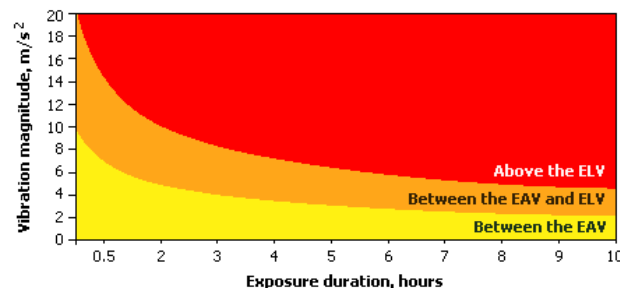
- Designing out the need to use vibrating tools where possible.
- Procuring low-vibration tools and appendages suitable for the task.
- Incorporating job rotation to minimise exposure times

Vibration Exposure – The Law

Exposure Limit Value (ELV)

Set at **5.0 m/s²**, this is the maximum amount of vibration exposure that an operator can be subjected to in an 8hr working day.

The ELV must **NEVER** be exceeded under normal circumstances.

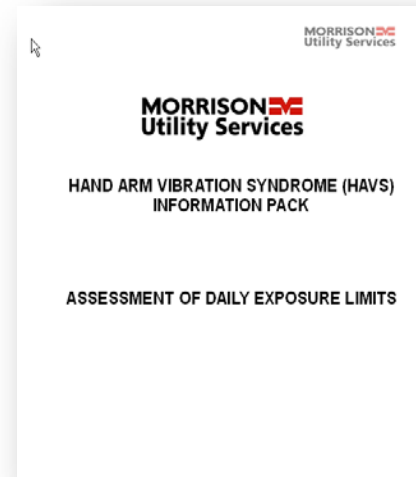


MUS HAV Information








MUS HAND ARM VIBRATION SYNDROME (HAVS) INFORMATION PACK

- Guidance on exposure duration
- Guidance on task sharing
- Details provision of “vibration dampened equipment”
- Encourages use of mechanical breakers where possible
- Story Board - Tool Box talk
- Use of appropriate PPE

ASSESSMENT OF DAILY EXPOSURE LIMITS



MUS Ready Reckoner





Typical full range of Equipment/ Plant analysed	Points per Minute	Points per 15 Minutes	1 st Action  Level	2 nd Action level  Time Action Required	DO NOT EXCEED 400 POINTS PER DAY 	1 st Level  <ul style="list-style-type: none">Complete Weekly Assessment of exposureAim to keep within this levelUse the correct and appropriate tools and appropriate PPE
Airsaw Fein MOT-18	6.91	103.65	0hrs 14 mins	58 mins		2 nd Level  <ul style="list-style-type: none">If you are working within this level try to reduce it back to the 1st action level by implementing control measures as indicated below.
Breaker AC TEX230 PE	0.59	8.85	2hrs 50 mins	>8hrs		Prohibited Exposure  <ul style="list-style-type: none">Do not exceed the maximum exposure limit of 400 points in one day.Stop using vibrating tools when limit is reached and contact FLM for instructions on how to proceed.
Breaker AC TEX28 PE	0.77	11.55	2hrs 10 mins	>8hrs		Control Measures  Max 400 points ELIMINATE – By using another method REDUCE – By job rotation and use low vibration tools ISOLATE – Use remote tools if available CONTROL – By risk assessment Follow written procedures and instructions Obey warning notices Use only appropriate sharp tools Wear warm clothing Wear appropriate additional PPE Monitor and record usage times and points
Hitachi DH25DAL	9.3	139.50	0hrs 11 mins	43mins		
Hitachi DH40MR	8.22	139.50	0hrs 13 mins	48mins		
Hitachi DH24PC3	8.53	127.95	0hrs 12 mins	47mins		
Makita HR400IC	5.21	78.15	0hrs 20 mins	1hrs 17mins		
JCB HM25 Hyd Power Pack & Breaker	0.53	7.95	3hrs 9 mins	>8hrs		
Petrol Disc Cutter Stihl	0.51	7.65	3hrs 17 mins	>8hrs		
Atlas Copco Petrol Powered Breaker	0.48	7.20	3hrs 28 mins	>8hrs		
Petrol Powergrit Saw	2.41	36.15	0hrs 42mins	2hrs 45mins		
Rammer- Large Foot BS60Y	1.92	28.80	0hrs 52 mins	3hrs 28mins		
Wacker Rammer BS50-2	0.97	14.55	1hrs 43 mins	6hrs 53mins		
S/Drum 28" Vibrating Roller	0.43	6.45	3hrs 51mins	>8hrs		
Roller Drum Breaker	1.16	17.40	1hrs 26mins	5hrs 45mins		
C51 Norton Clipper Floor Saw	1.21	18.15	1hrs 23mins	5hrs 31mins		
If the total use of ALL equipment used per day adds up to more than 100 units per 8 hour day refer to your Supervisor and record the exposure						

✓ Simple and easy to use.

✓ Calculations can be estimated before any work starts.



✓ Lists work equipment with points already calculated in minutes.

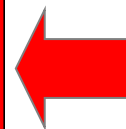
MUS Specific Action Levels

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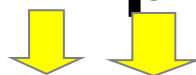
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Duration Exposure Points

- The maximum amount of units after which ACTION is required in an 8 hour NORMAL working day = 100 per person.
- The maximum units that shall not be exceeded in an 8 hour NORMAL working day = 400 per person.

Duration Exposure Points



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Ensuring Compliance

- ✓ Monitor your usage using the points system.
- ✓ If you think that you are reaching the first action level i.e. 100 points (as indicated in the Ready Reckoner) please complete the Plant usage Form.

HAV's Monitoring Pad

If the model for typical daily Plant Usage is not appropriate the following Weekly Assessment of Exposure should be completed and submitted to the Supervisor and Safety Manager.

Name		Job Title		Week Commencing	
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1. Time Spent using (and not setting up) each item of Plant in minutes.
2. Points used per minute.
3. Total

Type Of Plant Used	Monday			Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
	Time	Points	Total	Time	Points	Total	Time	Points	Total	Time	Points	Total	Time	Points	Total	Time	Points	Total	Time	Points	Total
Total Exposure Points																					
DAILY EXPOSURE ACTION LEVEL POINTS 100 MAXIMUM EXPOSURE POINTS 400			Name:																		
			Contract No.																		
			Team Leader Signature:																		
			First Line Manager Signature:																		

HAVs Wallchart

- Developed in conjunction with Off-highway Plant and Equipment Research Centre (OPERC).
- Uses “Traffic Lights” to show the level of HAV risk that is posed by each tool used.
- Will assist operatives, supervisors and managers to appropriately select vibrating hand-tools and undertake works within safe vibration exposure limits.
- Is fully compliant with the **Control of Vibration at Work Regulations (2005).**

