

ULTRA ACCESS

HAWS - Hand Arm Vibration Syndrome (Part B)

How to calculate HAV exposure and ELV - Exposure Limit Values

As discussed in Part A, **HAWS** - short for Hand-Arm Vibration Syndrome, is a growing issues within construction, and effects every trade that uses vibrating hand tools, from Chippies (Carpenters) to Dryliners, and also scaffolders.

We're going to concentrate on scaffolders today, and specifically look at the 3 main tools we use on a daily basis, and how to calculate the exposure levels for each of thew 3 below, using guidelines from the **Control of Vibration at Work Regulations 2005...** and looking at the risk levels therein:

- Below 2.5 m/s²: **Low risk**; monitor.
- 2.5–5 m/s²: **Action required** (e.g., reduce exposure, provide training).
- Above 5 m/s²: **Prohibited**; immediate controls needed.



The formula is to calculate ELV: $A(8) = a_{hv} \times \sqrt{(T / 8)} \dots$

Thank you, and see you later...
... or let's break that down, shall we.
(its not as complicated as it seems)

$A(8) = a_{hv} \times \sqrt{(T / 8)}$ is broken down as, **HAV Exposure Level = HAV Value x Time Used.**

Each piece of equipment has their own HAV values.

A standard Makita DTW300 ("Scaffolders" Impact Wrench) has a value of (approx) 12.5 m/s²

So, 12.5 m/s² x Time used per 8 hour shift, which is what? less than an hour trigger time, maybe 30 minutes absolute max, in total over an 8 hour day or 1 / 8 - equalling 0.0625.

$0.0625 \times 12.5 \text{ m/s}^2 = 0.78 \text{ m/s}^2 \text{ A}(8)$ ELV - being **Low risk**, falling far below the **Prohibited** Exposure Limit Value (ELV) of 5 m/s² A(8) to comply with the **Control of Vibration at Work Regulations 2005.**

However, as we spoke about in Part A - SDS Hammer Drills and Reciprocating / Recip Saws are different values and levels entirely.

Comparable levels of HAV Values, if only slightly higher, but it's the longer trigger time you need to apply to use them for that makes the ELV more hazardous, for example you could be using the trigger of a Reciprocating Saw for maybe 1 minute at a time, solid, compared with the burst of 2-3 seconds per fitting when using an Impact Wrench.

Thats 1 minute, per cut. Now times that by 100 cuts in a day... or $1.75 / 8 = 0.21$

$0.21 \times 13.0 \text{ m/s}^2 = 2.8 \text{ m/s}^2 \text{ A}(8)$ ELV for using a Recip for 100 cuts in a day, falling into the **Action required** Exposure Limit Value (ELV).

From a Risk Management perspective, and when writing RAMS, and or completing HAVS sheets, its always best to limit the usage of SDS Drills and Recips to a minimum, to reduce the HAV exposure, whereas Impact Wrenches are usually well below the risk level.