



Working hard together to reduce the impact of Hand Arm Vibration

Reducing Vibration Exposure with tools optimised for low vibration

*A case study by HAVi Technologies, Kress and Ritotorc Services to look at safer
methods of operation, May 2024*

Contents

Highlights	.....	3
Background	.....	3
Methodology	.....	3
Results	.....	4
Conclusions	.....	6
Report Authorities	.....	6
Further Information	.....	7

Highlights

- Using specialist *Impact Wrenches* optimised for low vibration increased safe¹ usage time by more than 175%
- Using specialist *Percussion Drills* optimised for low vibration increased safe¹ usage time by more than 70%
- Using specialist *Drivers* optimised for low vibration increased safe¹ usage time by more than 240%
- Using specialist *Jigsaws* optimised for low vibration increased safe¹ usage time by more than 575%
- Using specialist *Circular Saws* optimised for low vibration increased safe¹ usage time by more than 800%
- Using specialist *Angle Grinders* optimised for low vibration increased safe¹ usage time by more than 40%

¹ The existence of any level of vibration causes harm. The context of the word 'safe' in this document relates to the exposure permissible under CVWR 2005 regulations and the accompanying HSE guidelines on vibration, L140.

Background

In order to reduce exposure to vibration, we need to focus on the amount of vibration emitted by the tool in use whilst at the same time minimising the time to complete the task. The HSE, in their guidelines L140, refer to these variables as the Vibration Magnitude and the Trigger Time. Indeed, they go further and direct us to reduce risk to As Low As Reasonably Practicable (ALARP) by mandating the creation of a Suitable & Sufficient Risk Assessment to manage these.

Failure to manage these risks properly leads to employees being harmed by incurable damage the blood vessels, nerves and other soft tissues in the hand and lower arm. This damage is known as Hand Arm Vibration Syndrome (HAVs) and we are duty bound to manage it under the Control of Vibration Regulations (2005). These regulations are enforceable by the HSE and increasingly by the civil courts.

Methodology

Our teams measured the vibration magnitude resulting from the use of Impact Wrenches, Percussion Drills, Drivers, Jigsaws, Circular Saws and Angle Grinders optimised for low vibration and compared them to a recommended 'best in class' option. The same operative was used in each test.

For the Vibration Magnitude test, a Svantek SV106 six channel human vibration meter and Analyser was used in accordance with BS EN ISO 5349-2 & BS EN ISO 8041 (Calibration date: 08.02.24).



All tests were carried out on site at Ritetorc Services, 120 Joseph Wilson Industrial Estate, Whitstable, Kent CT5 3SN on Thursday 23rd May 2024

Results

Vibration Magnitude Test

	Vibration Magnitude ² (MS ²)	Time to EAV ³ (dd:hh:mm)	Time to ELV ⁴ (dd:hh:mm)
Recommended 'Best in Class' Impact Wrench	7.1	00:59:00	03:58:00
Kress KUB33 Impact Wrench	4.3	02:42:00	10:49:00

	Vibration Magnitude ² (MS ²)	Time to EAV ³ (dd:hh:mm)	Time to ELV ⁴ (dd:hh:mm)
Recommended 'Best in Class' Percussion Drill	3.8	00:03:28	00:13:51
Kress KUC30 Percussion Drill	2.9	00:05:57	00:23:47

	Vibration Magnitude ² (MS ²)	Time to EAV ³ (dd:hh:mm)	Time to ELV ⁴ (dd:hh:mm)
Recommended 'Best in Class' Driver	3.7	00:03:39	00:14:37
Kress KUB60.91 Driver	2.0	00:12:30	00:50:00

	Vibration Magnitude ² (MS ²)	Time to EAV ³ (dd:hh:mm)	Time to ELV ⁴ (dd:hh:mm)
Recommended 'Best in Class' Jigsaw	7.0	00:01:01	00:04:05
Kress KUE26 Jigsaw	2.7	00:06:52	00:27:26

	Vibration Magnitude ² (MS ²)	Time to EAV ³ (dd:hh:mm)	Time to ELV ⁴ (dd:hh:mm)
Recommended 'Best in Class' Circular Saw	3.0	00:05:33	00:22:13
Kress KUE12.9 Circular Saw	1.0	00:50:00	03:20:00

	Vibration Magnitude ² (MS ²)	Time to EAV ³ (dd:hh:mm)	Time to ELV ⁴ (dd:hh:mm)
Recommended 'Best in Class' Angle Grinder	3.6	00:03:51	00:15:26
Kress KUH10.91 Angle Grinder	3.0	00:05:33	00:22:13

² The Vibration Magnitude was measured in accordance with BS EN ISO 5349-2 & BS EN ISO 8041 using a calibrated device.


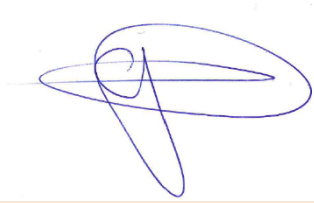
³ The Exposure Action Value (EAV) is the point at which an employer is required to take action to limit exposure by the employee. This typically takes the form of Health Surveillance aligned with various tactical changes such as job rotation and the investigation of alternative working methods. The HSE guidelines recommend the EAV is set to 100 points, however it is typically set lower than this for those with pre-existing HAVs symptoms.

⁴ The Exposure Limit Value (ELV) is the point at which vibration exposure must cease. It is critical that actions are undertaken to prevent repeat breaches at this level. The HSE guidelines recommend the ELV is set to 400 points, however it is typically set lower than this for those with pre-existing HAVs symptoms.

Conclusions

Impact Wrenches, Percussion Drills, Drivers, Jigsaws, Circular Saws and Angle Grinders optimised for low vibration, such as those supplied by Kress have the potential to significantly reduce the harm done to employees from using vibrating power tools.

Report Authorities

		
Date: xx.06.2024	Date: xx.06.2024	Date: xx.06.2024
<i>Mike Swan</i> CEO & Founder, HAVi Technologies	<i>Ed Burgess</i> Account Manager, Kress	<i>Jacob Luton</i> Sales & Marketing Manager, Ritotorc

Want to know more?



We are suppliers of leading global brands in manufacturing, across a wide range of sectors. Our hands-on experience means we can source and recommend the best tooling solution or product, first time, every time.

Contact:

Jacob Luton | jacob@ritetorc.com - www.ritetorc.com



KRESS is the benchmark brand of power tools for professionals. The entire range of products is endowed with high quality and powerful innovative technology, earning the reputation of end users all over the world

Contact:

Contact Name | ContactEmail@kresstools.com | www.kresstools.com



HAVi Technologies are an innovative, outcome driven provider of solutions that help organisations make better HAVs decisions, faster!

Contact:

Kate Louise Cole | kate@thehavi.com | www.thehavi.com