

# Health and Safety

## Hand Arm Vibration Syndrome (HAVS)

### What is HAVS?

HAVS occurs when people are exposed to excessive vibration. Vibrating tools such as breakers, drills & grinders can cause conditions including 'vibration white finger' and may also cause disorders of bones, muscles, joints & sensory nerves.

### How long can I use a tool for?

The amount of time you can safely use equipment varies depending on the type of tool, its condition, the materials you are working with and the job you are doing.

It is essential that you check carefully

to ensure you are not facing the risk of developing a hand arm vibration-related disease, such as 'vibration white finger'.

### Preliminary checks

- Use data based on the actual materials you are drilling or cutting, for example, safe periods for tarmac verses concrete may differ.
- Make sure you use the right type, size and shape of tool to reduce risk.
- Look after tools and maintain them properly to reduce unnecessary risk.
- Keep all blades and points sharp.

### Calculating risk limits

The length of exposure to hand-arm vibration is measured in metres per second squared (m/s<sup>2</sup>). You are at greater risk if you use a tool rated above 2.5 m/s<sup>2</sup> throughout an 8 hour working day.

Continuous use of a tool rated above 5.0 m/s<sup>2</sup> represents a dangerously high risk. If using a variety of tools see table below.

### HOW TO USE THE HAVS RISK CHART:

- Look on the left-hand scale for the vibration output (m/s<sup>2</sup>) of the tool you are using (Tool list on opposite page). Read across the exposure time column to identify HSE points.
- Add the HSE Points for each tool used in a day as a guide to risk. Do not exceed 400 points.
- For example – using a tool rated 13 m/s<sup>2</sup> for half an hour will result in 170HSE points. Using a second tool rated at 5 m/s<sup>2</sup> for a further 2 hours will add another 100 HSE points giving a total of 270 HSE points

TOOL VIBRATION IN M/S <sup>2</sup>	25	315	625	1250																	
	20	200	400	800																	
	19	180	360	720	1450																
	18	160	325	650	1300																
	17	145	290	580	1150																
	16	130	255	510	1000																
	15	115	225	450	900	1350															
	14	98	195	390	785	1200															
	13	85	170	340	675	1000	1350														
	12	72	145	290	575	865	1150	1450													
	11	61	120	240	485	725	970	1200	1450												
	10	50	100	200	400	600	800	1000	1200												
	9	41	81	160	325	485	650	810	970	1300											
	8	32	64	130	255	385	510	640	770	1000											
	7	25	49	98	195	295	390	490	590	785											
	6	18	36	72	145	215	290	360	430	575											
	5.5	15	30	61	120	180	240	305	365	485											
	5	13	25	50	100	150	200	250	300	400											
	4.5	10	20	41	81	120	160	205	245	325											
4	8	16	32	64	96	130	160	190	255												
3.5	6	12	25	49	74	98	125	145	195												
3	5	9	18	36	54	72	90	110	145												
2.52	3	6	13	25	38	50	63	75	100												
2	2	4	8	16	24	32	40	48	64												
1.5	1	2	5	9	14	18	23	27	36												
1	1	1	2	4	6	8	10	12	16												
	15m	30m	1h	2h	3h	4h	5h	6h	8h												
	EXPOSURE TIME																				

### Vibration Risk Colour Coding

The Construction Federation and Hire Association Europe in partnership with the HSE have developed a simple 'traffic light' system of colour coding to show the vibration risks associated with tools and equipment.

All equipment in this catalogue with a vibration risk follows the traffic light system.

### High Vibration Risk Equipment

Covers products over 5m/s<sup>2</sup> or 400 points. this equipment could cause vibration injury even when used for a short time each day. Specific risk assessment will be required.

### Medium Vibration Equipment

Cover equipment that may be used for two hours maximum each day with out further assessment. Products at the low end of the amber range may be used for longer periods but must be justified by a risk assessment.

### Low Vibration Risk Equipment

Covers equipment that may be used intermittently throughout an eight hour day with a low risk of vibration injury.

# Health and Safety (HAVS) Chart

EQUIPMENT	Model No.	HAV	Ham Conc	Chis Metal
Alligator Saw	GFZ16-35AC	7		
Angle Grinder 7"	9607b	6.5		
Angle Grinder 4.5"	GWS8-115	5.5		
	9564H	8		
	9554NB	6		
Angle Grinder 5"	GWS9-125	6.5		
	9005B	4.5		
	9542	4.5		
	9565	4.5		
Angle Grinder 9"	GWS20-230	5		
	9069S	5.5		
	GA9020	5.5		
Artex/Paint Stripper	P/Prep EPO180	2.5		
Artex/Paint Stripper diamond	P/Prep Diamond	4.5		
Autofeed Screwdriver	6834	3		
Belt Sander	GBS100A	2.5		
Belt Sander	9030	2.5		
Biscuit Jointer	3901	2.5		
Breaker Lt	GSH5E	8		
	HM0860C	11.5		
Breaker Med	GBH11DE	21	21	16 C
	TE805	15		
	HM1200K	22		
Breaker Super heavy	11304	19		
	USH27	19		
	HM1800	9		
Breaker heavy	TE905	15		
	TE905AVR	8.5		
	HM1304	15.5		
Breaker heavy 2 stroke	BH23	2.5		
Breaker Heavy Hydraulic	20-140	5.7		
	LP920P	3.3		
Brush Cutter 2 stroke	FS200	5.2		
	FS120	4.4		
	FS80	3.7		
	FS55	4		
	KM55/90R	4.1		
	Strimmer Head	4.1		
	Pruner	1.7		
	Hedge trimmer	5.1		
	GR2026D	6.2		
Brush Cutter 2 stroke HD	FS300	1.3		
Cartridge Nail Gun red cart	dx460	1000		
black cart	dx460	600		
Chasing Machine	gnf20c	4		
	de-se20	4.5		
Circular Saw 7"	GKS 65	3		
	5703R	3.5		
Circular Saw	GKS85S	3.5		
	5903R	3		
Circular Saw Steel	evolution X230	3.9		
Concrete planer hand	PC1100	1.5		
Cordless Drill/Screwdriver	GSR9.6v	2.5		
Cordless 3/8 var speed	GSR9.6v	2.5		
	PSR9.6 VES-2	2.5		
	9.6v	2.5		
Cordless 3/8 Percussion	PSB 9.6v	2.5		
	PSB 12vsp-2	2.5		
	PSB 12vVE-2	2.5		
Cordless drill/driver 1/2"	BDF451SPE	2.5		
Cordless percussion drill 1/2"	GSB12VES-2	2.5		
	GSB24VE-2	2.5		
	24v	2		
Cordless roto hammer	GBH24VRE	3	12	
	BHR200	2.5	14	

EQUIPMENT	Model No.	HAV	Ham Conc	Chis Metal
Cut-off bench saw	2414			
Delta sander	MSXE6361	2.5		
	MSXE6362	2.5		
Diamond Drill	DD100	6		
	DD130	6		
	DMB131	0		
Die Grinder	1210	6		
Disc Cutter	k750	4.6		
	k760	4.6		
	k750	5		
	k950	9		
	k650	6		
	k650 act	6.8		
	k750	4.6		
	k700 act	9		
	TS400	2.4		
	TS410	1.4		
Disc Cutter 12" Electric	GWS24-300	8		
Door Trimmer saw	Trimmer	2.5		
	184mm	6		
Drill	4 speed	0		
Drill Dry Diamond	8406C	3.5		
Drill 3/4 4 speed H/duty	B4-32	0		
Drill Rt angle 3/8"	DA3000	2.5		
Drill Rt angle 1/2"	6300lr	2.5		
Dumper	MACH201			
Floor Edge Sander	HT7	2.7		
Floor Grinder H/Duty Elec	PD23	6.5		
Floor Planer	FS200	9.8		
	CPM8	9.8		
Floor Polisher/Scrubber		2.5		
Floor Sander	HT8	1.6		
Floor Sander/Scrubber	NMD100S	2.5		
Floor Saw 18"		4.5		
Floor Saw 16"	CS1P13	4.5		
Floorsaw 14"	FS350S	4		
Floor Scrubber/Drier	345TT	2.5		
	Scrubtec	2.5		
Hedge Trimmer 240v	PHS 46G	2.5		
	AHS55	2.5		
	UH5520	1.5		
Hedge Trimmer petrol	HS80	6.4		
	HS45-24	6.6		
	HS45	6.4		
Hi-Lift Tracked Wheelbarrow	HT500	6.91		
Impact Wrench 3/4 elec	14367	10		
	6906	12		
Jigsaw Med	BSPE60	4		
	BSPE60	4		
	1582	3		
Jigsaw H/D	GST100BCE	2.5		
	WSJ110	11		
	4304T	7		
	4324	8		
Lawn Aerator		0		
Lawn Mower,	GMP21	2.5		
Lawn Rake	GD200	0		
	GD300	0		
Lawn Scarifier Elect		2.5		
Lawn Scarifier petrol	LS42	6.2		
Log Splitter	Electra	2.5		
Masonry Sawbench	CGW & DHW	4		
	EDW350p	4.5		

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EQUIPMENT	Model No.	HAV	Ham Conc	Chis Metal
Mitre Saw	2400B	2.5		
	LS1013	2.5		
	LS1030	2.5		
		2.5		
Multisystem MM55	LawnRake	1.8		
	Sweeper	1.8		
	Bristle brush	1.8		
	Edger	1.7		
	Pick Tynes	1.8		
Needle gun	GBH4DSC	4.5		
Nibblers	1530.1	10		
	RSS636-2	10		
Orbital Sander	9035kb	3		
Orbital Sander h/d	9045N	3.5		
	GSS28A	4.5		
Paddle Mixing drill	MM305	1.7		
	GRW11E	2.5		
Palm Sander	GSS16A	4.5		
	BO4553	4.5		
Paslode Nail Gun	IM350/90ct	8.3		
Paslode brad nailer	IM65	10		
	IM65A	10		
Percussion Drill 3/8"	GSB18-2E	17	17	5(m)
	GSB20-2RE	2.5	19.5	5.5m
	GSB16RE	16	16	
	GSB22-2RE	2.5	16	5
	8419B-2	2.5	15	
	HP2010N	2.5	13	
	HP2030	8.5	8.5	
Planer	KP0810K	3.5		
	MFF80	6.5		
Plate Compactors Lt duty	VP1030	4.5		
	VP1135A	4.5		
	WP1235	4.5		
	PCL320	3.5		
Plate Compactors med duty	VP 1340A	4.5		
	VP1740	3.5		
	PC400	3.68		
Plate Compactors H/duty	VP1550AW	4.5		
Poker Hi Frequency 45mm		6		
Vibrating Poker 25mm		5.6		
Vibrating Poker 38mm		5.6		
Vibrating Poker 50mm		8.6		
Vibrating Poker 75mm		10		
Post Hole Borer	BT121	5.3		
Post Hole Borer 1 man		7		
Power Wheelbarrow				
Power Wheelbarrow Tkd Hi Lift		6.91		
Pressure Washer cold elec	Storm	2.5		
	RE125	2.5		
Pressure Washer cold petrol	KPE20	2.6		
Pressure Washer cold Diesel	25KD	3		
	EPG30YED	3		
Pressure Washer Hot 240v	RE550W	2.5		
Random Rotary Sander	GEX150ACE	4		
Reciprocating Saw	PFZ550	8		
	JR3000v	20		
	JR3050T	22		
	Tiger ANC	28.3		
	CR13VA	18		
Roller Vibrating Single drum	BW71	5.5		
Roller Vibrating 22" petrol		7.4		
Roller Vibrating Twin Drum	BW80	2.5		

EQUIPMENT	Model No.	HAV	Ham Conc	Chis Metal
Roto-Hammer Lt	PBH16re	9		
	GBH2-18RE	2.5	15	
	GBH2-20SRE	11		
	TE5	8		
Roto-Hammer Med	GBH4-26SE		16	15c
	GBH 24DSE		15	10c
	GBH2SE	11		
	GBH2-24DSR	11		
	GBH 432	2.5	10	9 c
	HR2020	2.5		
Roto Hammer Heavy	HR2450	4.5		
	HR2470	4.5	15.5	12.5C
	HR300c	2.5	10	7C
	GBH7DE		21	18c
Roto hammer superheavy	GBH7-45DE		21	18c
	D25600K			
	TE56ATC	16		
	HR3000c	2.5	10	7
	HR4000c	12.5		10.5
	GBH11DE		21	16c
Roto hammer superheavy	TE76	17		
	TE76ATC	15		
	HR3550K	2.5	18	12.5C
	HR5000K	12.5		
	Magic	13		
Rotovator L/duty petrol	Tiller 2000	2.9		
Rotovator M/duty petrol	C8	4.9		
Rotovator H/duty petrol	C10	7.3		
Router H/duty	GOF 1300ACE	5.5		
	GOF1603	5.5		
	GOF1700E	5.5		
	3612BR	2.5		
Sawbench wood	805	1		
Screed 2m petrol	RVL200	2.1		
Shredder Petrol 3"	Major	1		
Shredder Elect 40mm cut	GE250	1		
Strimmer - wheeled model		2.5		
Stump Grinder petrol	C500	2.5		
	US	2.5		
Tek Gun	6820BV	2.5		
Tilesaw, Electric	TCS230M	0		
	combi 200	0		
	TCS181a	0		
Tilesaw, Electric	TR250H	0		
Trench Compactor med	BS45Y	9.6		
	BS60Y	9.8		
Trench Compactor H/duty	RT66	17.8		
Turf Cutter		4.8		
Vacuum & Blower Elec	ES40	2.7		
Vacuum & Blower 2 stroke	SH55	3.6		
	SH56C	2.7		
Vacuum Unit Outdoor		2.5		

#### PLEASE NOTE:

In most cases vibration figures for use in the Traffic Light System have been declared by the respective manufacturers, and the values may not reflect the vibration emission of the tool in real life conditions. Please note that the vibration symbols should not be used as a substitute or your own risk assessment.

For practical HAVS data, further information is on the Operc website: [www.operc.com/havtec/](http://www.operc.com/havtec/)