

In-house Hand Harm Vibration Assessment of a Number of Rotary Burr and Mounted Point Applications

Prime Mover	Speed rpm	Burr Reference	No. of Teeth	Test No.	Force Applied to Tool	Air Pressure	Workpiece Material	Test Duration	X Axis	Y Axis	Z Axis	Vector Sum	Hours for A(8) 2.8	Hours for A(8) 2.8	Hours for A(8) 2.5
									$a_{x,h,w}$ ms ⁻²	$a_{y,h,w}$ ms ⁻²	$a_{z,h,w}$ ms ⁻²	$a_{h,w}$ ms ⁻²	Dominant Vector Sum	Vector Sum	
Biax SVH385	85,000	TD030031P30	10 BSD	151	Moderate	6 Bar	Hastelloy X	1Min.man	0.6	0.7	0.7	1.16	128.0	46.8	37.3
Biax SVH385	85,000	TD030031S30	11+6	152	Moderate	6 Bar	Hastelloy X	1Min.man	0.8	0.6	0.6	1.17	98.0	46.1	36.8
Biax SVH385	85,000	TD030031S30352	11+6	153	Moderate	6 Bar	Hastelloy X	1Min.man	0.7	0.8	0.6	1.22	98.0	42.1	33.6
Biax SVH385	85,000	TD030032P30	12 BSD	154	Moderate	6 Bar	Hastelloy X	1Min.man	0.6	0.6	0.6	1.04	174.2	58.1	46.3
Suhner LSB45	45,000	TC060151S60	16+9	155	Moderate	6 Bar	Stainless Steel	1Min.man	0.6	0.6	0.6	1.04	174.2	58.1	46.3
Suhner LSB45	45,000	TC060151S60	16+9	156	Heavy	6 Bar	Stainless Steel	1Min.man	0.6	0.9	0.7	1.29	77.4	37.8	30.1
Suhner LSB45	45,000	TC060151S60	16+9	157	Heavy	6 Bar	Stainless Steel	1Min. auto	0.8	0.9	0.7	1.39	77.4	32.3	25.8
Suhner LSB45	45,000	As above but 2S	20+11	158	Moderate	6 Bar	Stainless Steel	1Min. auto	0.6	1.0	0.6	1.31	62.7	36.5	29.1
Suhner LSB45	45,000	As above but 2P	20	159	Moderate	6 Bar	Stainless Steel	1Min. auto	0.6	0.9	0.6	1.24	77.4	41.0	32.7
Suhner LSB45	45,000	As above but 3S	24+14	160	Moderate	6 Bar	Stainless Steel	1Min. auto	0.7	1.3	0.6	1.59	37.1	24.7	19.7
Biax SBRH820	20,000	TF130251S1560	20+11	161	Moderate	6 Bar	Cast Iron	1Min. auto	0.5	0.9	0.8	1.30	77.4	36.9	29.4
BIAX SBRH820	20,000	As above but 1P	20	162	Moderate	6 Bar	Cast Iron	1Min. auto	0.7	1.0	1.0	1.58	62.7	25.2	20.1
BIAX SBRH820	20,000	As above but 2S	24+13	163	Moderate	6 Bar	Cast Iron	1Min. auto	0.7	1.0	1.1	1.64	62.7	23.2	18.5
BIAX SBRH820	20,000	As above but 2S	24+13	164	Mod to Heavy	6 Bar	Cast Iron	1Min. auto	0.7	0.8	0.9	1.39	77.4	32.3	25.8
BIAX SBRH820	20,000	As above but 3S	30+14	165	Moderate	6 Bar	Cast Iron	1Min. auto	0.9	1.8	0.7	2.13	19.4	13.8	11.0
BIAX SBRH820	20,000	As above but 3S	30+14	165	Moderate	6 Bar	Cast Iron	1Min. auto	0.7	1.7	0.8	2.00	21.7	15.6	12.4
Suhner LSB45	45,000	TF13025S0L60	6	166	Moderate	6 Bar	Aluminium Ingot	1Min. auto	1.2	1.4	1.9	2.65	17.4	8.9	7.1
BIAX SBRH820	20,000	TF13025S0L60	6	167	Moderate	6 Bar	Aluminium Ingot	1Min. auto	0.7	1.6	1.1	2.06	24.5	14.7	11.7
SPINTECH	24,000	W178	N/A	168	Moderate	N/A	Tool Steel 60 C	1Min. auto	2.2	1.4	1.0	2.79	13.0	8.0	6.4
SPINTECH	15,900	A11 LARGE ISO	N/A	169	Light/moderate	N/A	Tool Steel 60 C	1Min. auto	1.4	3.8	1.7	4.39	4.3	3.3	2.6
SPINTECH	15,900	A11 PRESSED	N/A	170	Light/moderate	N/A	Tool Steel 60 C	1Min. auto	1.3	2.2	0.9	2.71	13.0	8.5	6.8

Formulae used

Vector Sum $@SQRT(J20^2+K20^2+L20^2)$ where J,K & L are the X,Y and Z (harm weighted) vibration measurements

A8 (2.8) $@SUM(((2.8/M20)^2)*8)$ where M is the Harm weighted Vector sum

A8 (2.5) $@SUM(((2.5/M20)^2)*8)$ where M is the Harm weighted Vector sum

NB the Vector sum has been calculated to 2 decimal places simply to show differences in the results