ONLY CNCs

MAKING CNC EASY

DEVELOPMENT GUIDE

BRIEF

Feeds and speeds - This is about how fast and deep you should be running your CNC machine. These settings vary depending on what machine you have, what Bit you are using to cut, and what material you are cutting into.

Problem - Feeds and speeds are the biggest issue for people getting into CNC machines, particularly desktop CNC machines. The existing feeds and speeds platforms are all targeted more robust machines and the settings are not relevant to desktop machines.

Solution - Create a website (and ideally an app) where people can simply select their machine, their spindle, CNC bit and materials and it will give them the data they need.

SOLUTION EXPLAINED

A database of information has been built specifically for desktop CNC machines containing five sets of data for specific spindles/routers. Each data set contains the individual speeds and feeds a user will need for their jobs.

Through the process of answering four questions, the user will be delivered a set of figures from one of the data sheet. Depending on the combination of answers, the Feed, DOC and Plunge will need to have a multiplier applied before the data is shown. The “Profile” data will be 90% of the original values

Examples: User selects **4030 V2 > Router > 1/8th Upcut Bit > Softwood** would look like this:

Data sheet = Router

Column = 1/8th Upcut Bit

Row set = Softwood

Original data set

Softwood	
RPM	15000
Feed	1600
DOC	2.5
Stepover	1.27
Plunge	800

Multiplier = 4030 v2 = 0.9

Data set with multiplier

Softwood	
RPM	15000
Feed (x 0.9)	1440
DOC (x 0.9)	2.25
Stepover	1.27
Plunge (x 0.9)	720

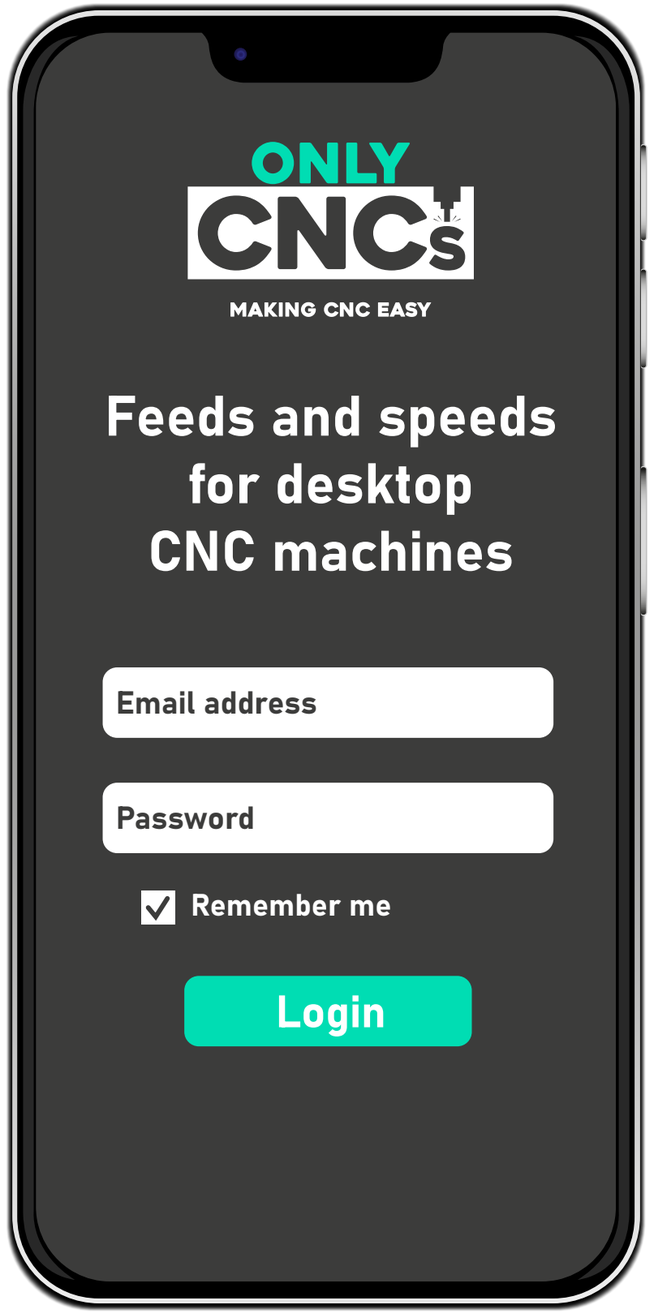
Pocket	
RPM	15000
Feed	1440
DOC	2.25
Stepover	1.27
Plunge	720

Profile	
RPM	15000
Feed (x 0.9)	1296
DOC (x 0.9)	2.06
Plunge (x 0.9)	648

USER JOURNEY
STEP ONE - PURCHASE

User needs to be able to purchase access to the platform and create an account. Should only require fairly basic information such as name, address, email, user name and password. Usual payment methods.

Need the ability to add discount codes as access will be given away to some people for free and there will also be sales.



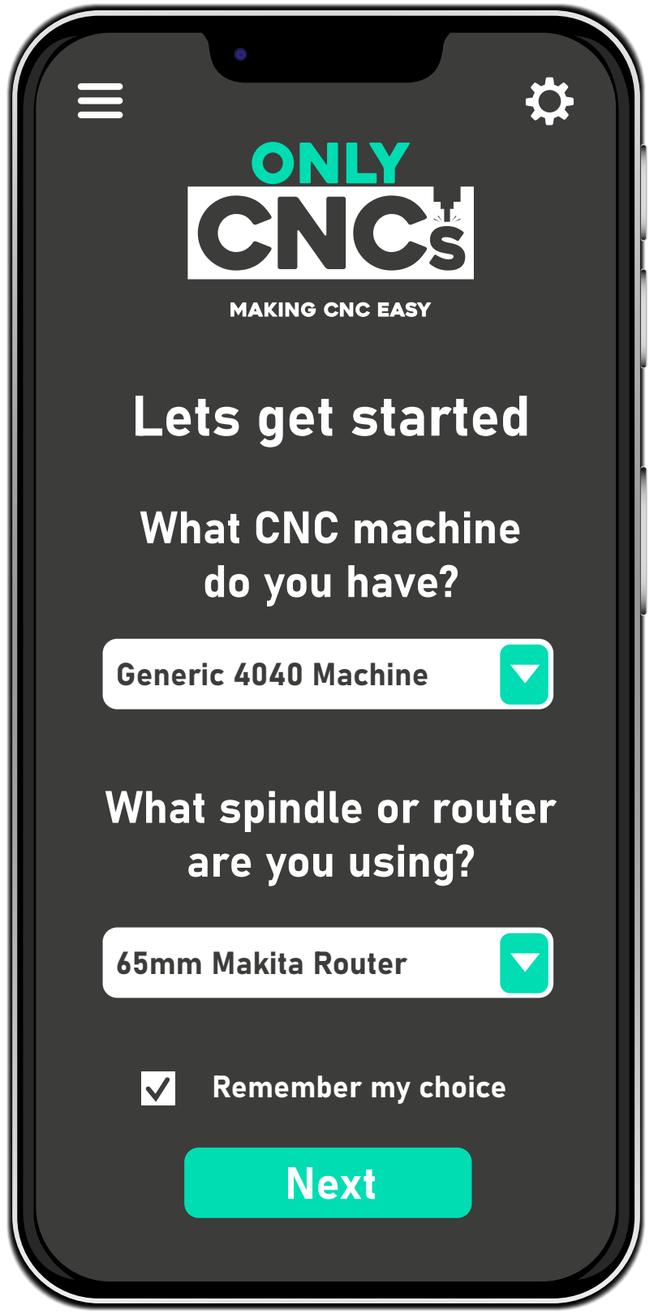
USER JOURNEY
STEP TWO - MACHINE

Once purchased and logged in, the user will be presented with a basic screen where they can select what CNC machine they have from a predefined list.

They will then need to select what spindle/router setup they are using.

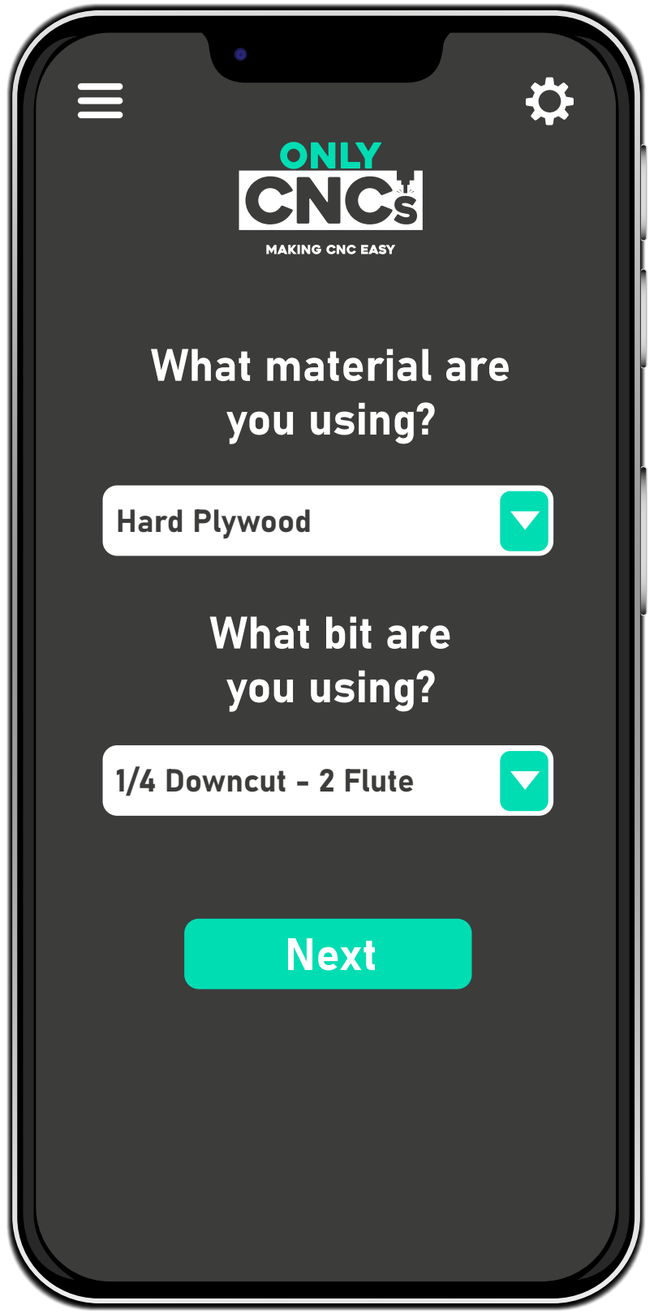
A tick box allowing these two options to be remembered and be the default choice every time the user returns

Both menus need to have something selected before the user can move forward.



USER JOURNEY
STEP THREE - MATERIAL

They will then select what bit they are using as well as what material that are planning to machine.

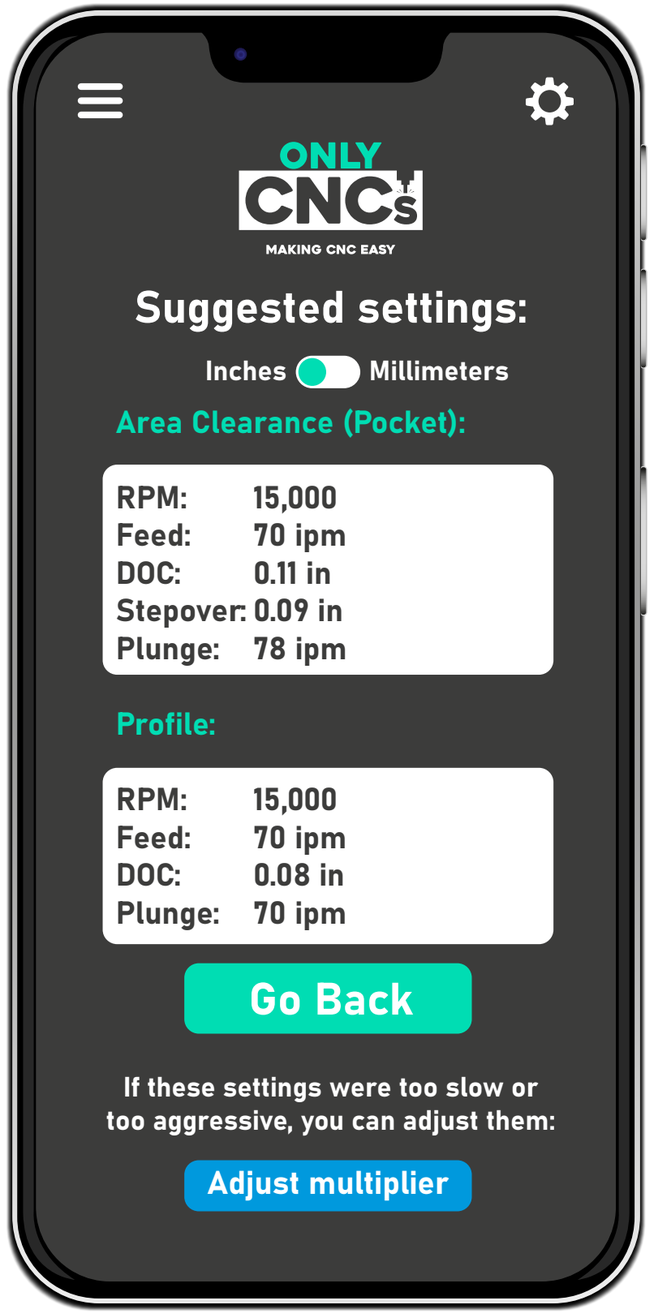


USER JOURNEY
STEP FOUR - RESULTS

Based on the previous four choices, they will then be presented with the settings they need. They will also have the option to switch between inches or millimetres.

They should have an option to return to the previous screen.

There should also be an option to adjust the multiplier value.

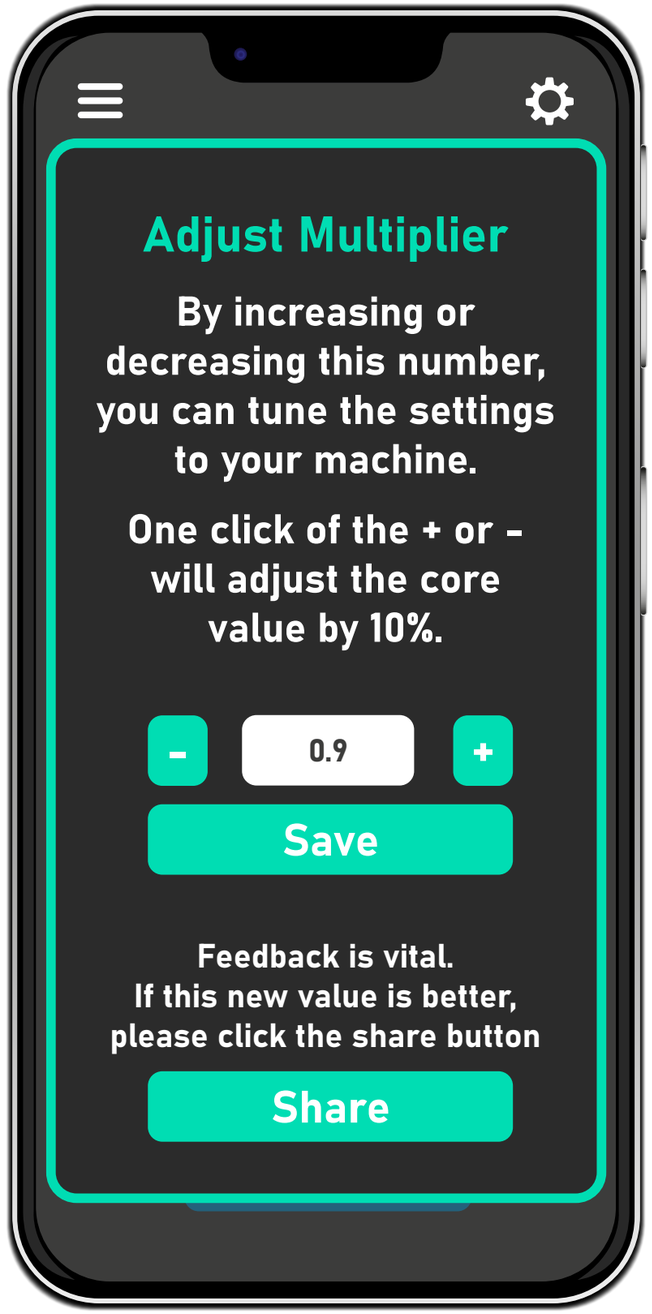


USER JOURNEY MULTIPLIER

By selecting the Adjust Multiplier button, they will be presented with the option to change the core value used in the calculation.

By clicking save it will update the speeds and feeds value they are presented with.

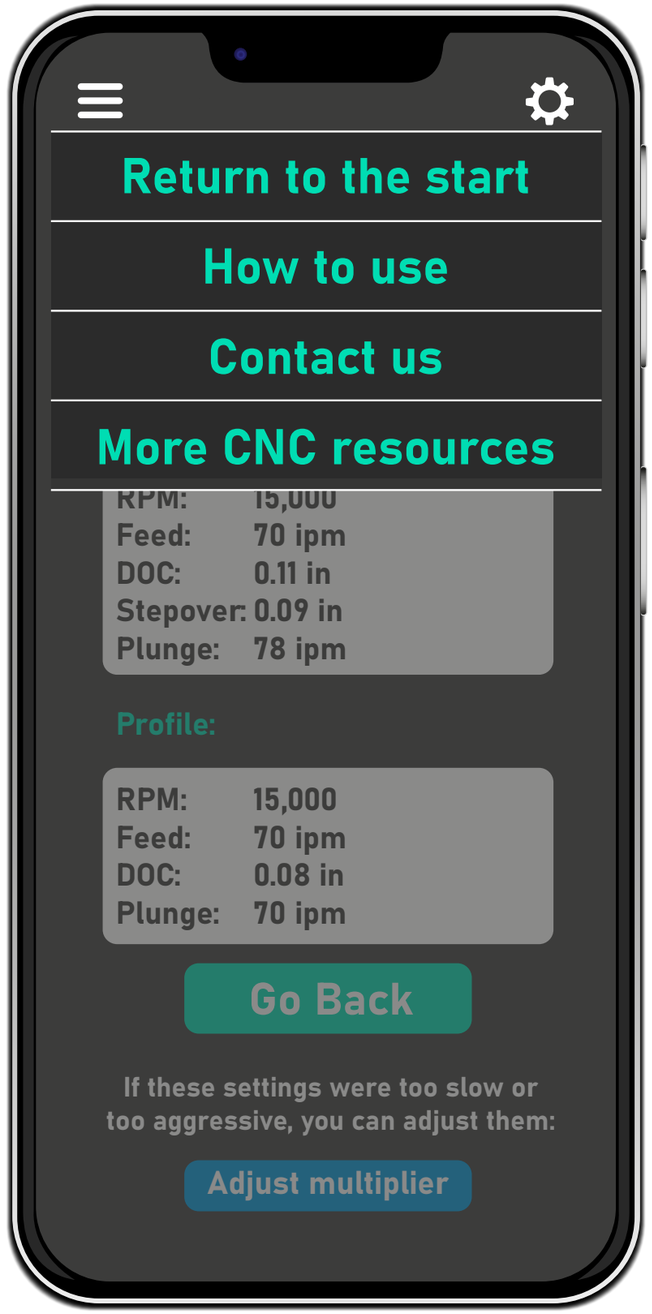
The Share button should feedback to me.



USER JOURNEY
MENU AND SETTINGS

The menu icon would present the user with a few options.

Settings icon would allow them to edit their basic profile settings, reset settings and log out.



BACK END FEATURES

Data adjustment

I need to be able to adjust the data sets when required and publish them easily.

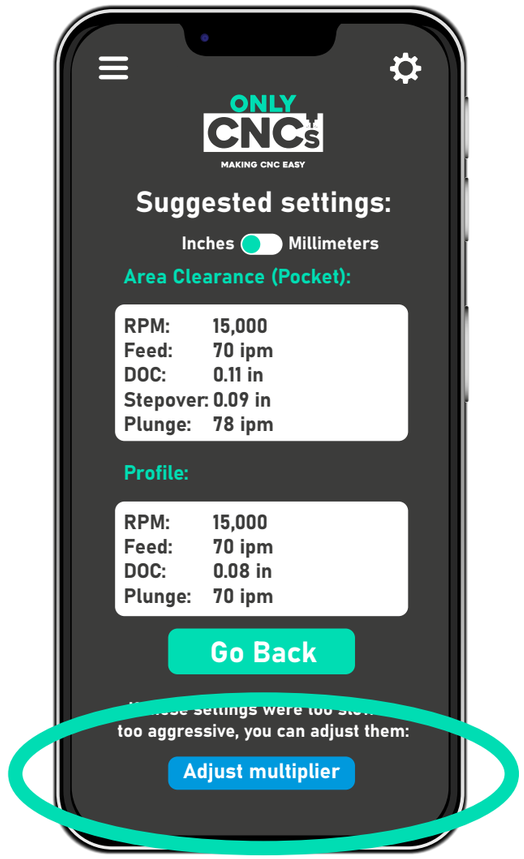
User management

Standard user management, seeing how many users, being able to refund people, block users etc.

Feedback

The share button should report the Machine, Spindle, Bit, Material plus the new mutliplier value. If possible, the user as well.

This can be via email or into a database, whatever is easiest.



FEEDBACK RECEIVED
User:
James Prestage:

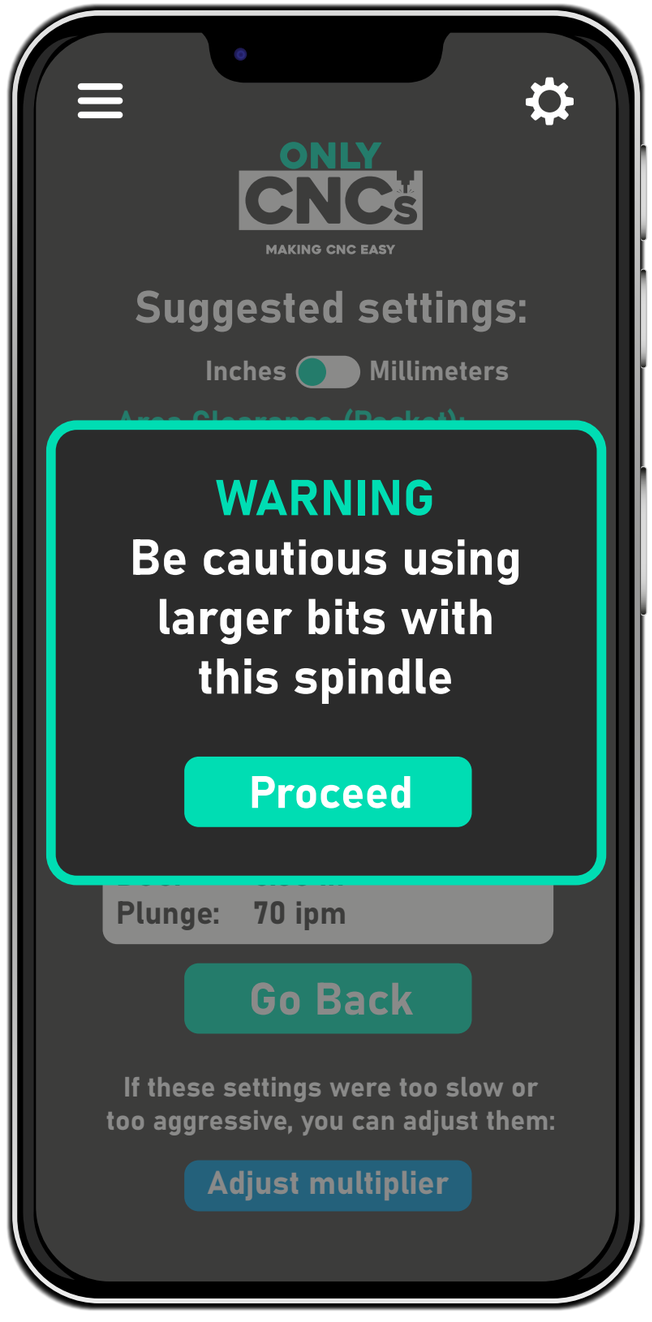
New multiplier:
1.1

Settings:
4030 V2
Router
1/8th Upcut bit
Softwood

Additional Comment:
[empty]

BACK END FEATURES
CONT...

Message display
In the data set, at the top of some colums there are messages. If a user selects a combination which results in the column having a message, that message should be displayed to the user with a proceed button.



DATA SNAPSHOT
60W

	1/8th Upcut	1/8th Downcut	1/8th Ball nose	1/8th TBN 0.25r	1/8th TBN 0.5r	1/8th TBN 1r	1/8th O Flute	1/4 Upcut	1/4 Downcut	1/4 Compression	1/4 Ball Nose	1/4 Bull Nose	1/4 TBN 0.25r	1/4 TBN 0.5r	1/4 TBN 0.75r	1/4 TBN 1r	1/4 O Flute	20 Deg V	30 Deg V	60 Deg v	90 Deg V
Bit dia for calc	3.175	3.175	3.175	0.5	1	2	3.175	6.35	6.35	6.35	6.35	6.35	0.5	1	1.5	2	6.35	0.2	0.2	6.36	6.35
Stepover	40%	40%	10%	10%	10%	10%	40%	40%	40%	40%	10%	10%	10%	10%	10%	10%	40%	10%	10%	40%	40%
Warning								Be cautious using larger bits with this spindle	This bit is not ideal for this spindle	This bit should NOT be used on this spindle	Be cautious using larger bits with this spindle	Be cautious using larger bits with this spindle					Be cautious using larger bits with this spindle				
Bit Diameter	3.175	3.175	3.175	3.175	3.175	3.175	3.175	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35				
MDF																					
RPM	12000	12000	12000	12000	12000	12000	12000	12000	10000	NA	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	800	560	1200	1800	1700	1500	1350	1100	770	NA	1600	1600	1500	1400	1300	1200	1000	1500	1500	1300	1000
DOC	1	0.7	2	2	2	2	2	1	0.7	NA	1	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	400	280	600	900	850	750	675	550	385	NA	800	800	750	700	650	600	500	750	750	650	500
Softwood																					
RPM	12000	12000	12000	12000	12000	12000	12000	12000	10000	NA	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	900	630	1300	1800	1700	1500	1400	1300	910	NA	1800	1800	1500	1400	1300	1200	1100	1500	1500	1300	1000
DOC	1	0.7	2	2	2	2	2	1	0.7	NA	1	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	450	315	650	900	850	750	700	650	455	NA	900	900	750	700	650	600	550	750	750	650	500
Hardwood																					
RPM	12000	12000	12000	12000	12000	12000	12000	12000	10000	NA	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	460	322	730	1200	1100	1000	750	480	336	NA	900	900	1000	900	800	700	580	1000	1000	900	700
DOC	1	0.7	2	2	2	2	2	0.5	0.35	NA	1	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	230	161	365	600	550	500	375	240	168	NA	450	450	500	450	400	350	290	500	500	450	350
Soft Plywood																					
RPM	12000	12000	12000	12000	12000	12000	12000	12000	10000	NA	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	900	630	1200	1800	1700	1500	1300	1300	910	NA	1600	1600	1500	1400	1300	1200	1100	1500	1500	1300	1000
DOC	1	0.7	2	2	2	2	2	1	0.7	NA	1	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	450	315	600	900	850	750	650	650	455	NA	800	800	750	700	650	600	550	750	750	650	500
Hard Plywood																					
RPM	12000	12000	12000	12000	12000	12000	12000	12000	10000	NA	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	800	560	1000	1700	1600	1400	1100	480	336	NA	1400	1400	1200	1100	1000	900	800	1400	1400	1200	700
DOC	1	0.7	2	2	2	2	2	0.5	0.35	NA	1	1	1.5	1.5	1.5	1.5	1	1.5	1.5	1.5	1.5
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	400	280	500	850	800	700	550	240	168	NA	700	700	600	550	500	450	400	700	700	600	350
Acryic																					
RPM	12000	NA	10000	10000	10000	10000	9500	8000	NA	NA	12000	12000	10000	10000	10000	10000	7000	10000	10000	10000	10000
Feed	1000	NA	950	1200	1100	900	800	800	NA	NA	1200	1200	1000	900	800	700	400	900	900	800	600
DOC	0.5	NA	1	1	1	1	2	1	NA	NA	1	1	1	1	1	1	1	1	1	1	1
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	500	NA	475	600	550	450	400	400	NA	NA	600	600	500	450	400	350	200	450	450	400	300
Soft Metal																					
RPM	12000	NA	12000	12000	12000	12000	12000	NA	NA	NA	12000	12000	12000	12000	12000	12000	8000	12000	12000	12000	12000
Feed	220	NA	350	780	700	550	180	NA	NA	NA	450	450	650	600	550	500	180	550	550	450	300
DOC	0.5	NA	0.5	0.5	0.5	0.5	0.5	NA	NA	NA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	110	NA	175	390	350	275	90	NA	NA	NA	225	225	325	300	275	250	90	275	275	225	150

DATA SNAPSHOT 500W

	1/8th Upcut	1/8th Downcut	1/8th Ball nose	1/8th TBN 0.25r	1/8th TBN 0.5r	1/8th TBN 1r	1/8th O Flute	1/4 Upcut	1/4 Downcut	1/4 Compression	1/4 Ball Nose	1/4 Bull Nose	1/4 TBN 0.25r	1/4 TBN 0.5r	1/4 TBN 0.75r	1/4 TBN 1r	1/4 O Flute	20 Deg V	30 Deg V	60 Deg v	90 Deg V
Bit dia for calc	3.175	3.175	3.175	0.5	1	2	3.175	6.35	6.35	6.35	6.35	6.35	0.5	1	1.5	2	6.35	0.2	0.2	6.36	6.35
Stepover	40%	40%	10%	10%	10%	10%	40%	40%	40%	40%	10%	10%	10%	10%	10%	10%	40%	10%	10%	40%	40%
Warning										This bit is not suitable for this spindle											
Bit Diameter	3.175	3.175	3.175	3.175	3.175	3.175	3.175	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35				
MDF																					
RPM	12000	12000	12000	12000	12000	12000	12000	10000	10000	10000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	1300	910	2000	1800	1700	1500	1350	750	530	250	1500	1500	1800	1700	1600	1500	1750	1500	1500	1300	1000
DOC	2	1.4	2	3	3	3	2	2	1.4	5	2	2	2	2	2	2	2	2	2	2	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	650	455	1000	900	850	750	675	375	265	125	750	750	900	850	800	750	875	750	750	650	500
Softwood																					
RPM	12000	12000	12000	12000	12000	12000	12000	10000	10000	10000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	1400	980	2000	1800	1700	1500	1400	900	630	280	1900	1900	1800	1700	1600	1500	1900	1500	1500	1300	1000
DOC	2	1.4	2	3	3	3	2	2	1.4	5	2	2	2	2	2	2	2	2	2	2	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	700	490	1000	900	850	750	700	450	315	140	950	950	900	850	800	750	950	750	750	650	500
Hardwood																					
RPM	12000	12000	12000	12000	12000	12000	12000	10000	10000	10000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	760	532	1200	1200	1100	1000	750	600	420	150	1000	1000	1200	1100	1000	1000	1000	1000	1000	900	700
DOC	2	1.4	2	3	3	3	2	1	0.7	5	2	2	2	2	2	2	2	2	2	2	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	380	266	600	600	550	500	375	300	210	75	500	500	600	550	500	500	500	500	500	450	350
Soft Plywood																					
RPM	12000	12000	12000	12000	12000	12000	12000	10000	10000	10000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	1300	910	2000	2000	1900	1700	1300	790	550	260	1750	1750	2000	1900	1800	1700	1700	1500	1500	1300	1000
DOC	2	1.4	2	3	3	3	2	2	1.4	5	2	2	2	2	2	2	2	2	2	2	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	650	455	1000	1000	950	850	650	395	275	130	875	875	1000	950	900	850	850	750	750	650	500
Hard Plywood																					
RPM	12000	12000	12000	12000	12000	12000	12000	10000	10000	10000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Feed	1000	700	1700	1700	1600	1400	1100	750	520	180	1500	1500	1700	1600	1500	1400	1400	1400	1400	1200	700
DOC	2	1.4	2	3	3	3	2	1.5	1.05	5	2	2	2	2	2	2	2	2	2	2	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	500	350	850	850	800	700	550	375	260	90	750	750	850	800	750	700	700	700	700	600	350
Acryic																					
RPM	10000	NA	10000	10000	10000	10000	9500	8000	NA	NA	7000	7000	10000	10000	10000	10000	8000	10000	10000	10000	10000
Feed	800	NA	1200	1200	1100	900	800	340	NA	NA	730	730	1200	1100	1000	900	880	900	900	800	600
DOC	2	NA	2	2	2	2	2	1.5	NA	NA	2	2	1	1	1	1	2	1.5	1.5	1.5	1.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	400	NA	600	600	550	450	400	170	NA	NA	365	365	600	550	500	450	440	450	450	400	300
Soft Metal																					
RPM	11000	NA	12000	12000	12000	12000	12000	8000	NA	NA	12000	12000	12000	12000	12000	12000	10000	12000	12000	12000	12000
Feed	600	NA	780	785	700	550	400	200	NA	NA	500	500	780	700	600	550	400	550	650	550	450
DOC	1	NA	1	1	1	1	1	0.5	NA	NA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	300	NA	390	392.5	350	275	200	100	NA	NA	250	250	390	350	300	275	200	275	325	275	225

DATA SNAPSHOT 800W/ROUTER

	1/8th Upcut	1/8th Downcut	1/8th Ball nose	1/8th TBN 0.25r	1/8th TBN 0.5r	1/8th TBN 1r	1/8th O Flute	1/4 Upcut	1/4 Downcut	1/4 Compression	1/4 Ball Nose	1/4 Bull Nose	1/4 TBN 0.25r	1/4 TBN 0.5r	1/4 TBN 0.75r	1/4 TBN 1r	1/4 O Flute	20 Deg engravin	30 Deg V engrav	60 Deg v	90 Deg V
Bit dia for calc	3.175	3.175	3.175	0.5	1	2	3.175	6.35	6.35	6.35	6.35	6.35	0.5	1	1.5	2	6.35	0.2	0.2	6.36	6.35
Stepover	40%	40%	10%	10%	10%	10%	40%	40%	40%	40%	10%	10%	10%	10%	10%	10%	40%	10%	10%	40%	40%
Warning										Only to be used if your machine is capable of the depth											
Bit Diameter	3.175	3.175	3.175	3.175	3.175	3.175	3.175	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35				
MDF																					
RPM	15000	15000	15000	15000	15000	15000	15000	15000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1400	980	2200	2200	2000	1700	1600	1000	800	600	1800	1800	2000	1900	1800	1700	1900	1700	1700	1500	1300
DOC	3	2.1	3	3	3	3	2	3	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	700	490	1100	1100	1000	850	800	500	400	300	900	900	1000	950	900	850	950	850	850	750	650
Softwood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1600	1120	2200	2200	1900	1700	1600	1000	900	500	2100	2100	2100	2000	1900	1800	2000	1700	1700	1500	1300
DOC	2.5	1.75	2.5	3	3	3	2	3	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	800	560	1100	1100	950	850	800	500	450	250	1050	1050	1050	1000	950	900	1000	850	850	750	650
Hardwood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	900	630	1400	1400	1300	1200	950	800	700	300	1300	1300	1400	1300	1200	1100	1200	1200	1200	1100	1000
DOC	2.5	1.75	2.5	3	3	3	2	1.5	1.05	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	450	315	700	700	650	600	475	400	350	150	650	650	700	650	600	550	600	600	600	550	500
Soft Plywood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1500	1050	2200	2200	2100	1900	1500	950	800	500	2000	2000	2200	2100	2000	1800	1800	1700	1700	1500	1300
DOC	2.5	1.75	2.5	3	3	3	2	3	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	750	525	1100	1100	1050	950	750	475	400	250	1000	1000	1100	1050	1000	900	900	850	850	750	650
Hard Plywood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1100	770	1900	1900	1800	1600	1300	950	700	400	1700	1700	1900	1800	1700	1500	1600	1600	1600	1400	1000
DOC	2.5	1.75	2.5	3	3	3	2	2	1.4	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	550	385	950	950	900	800	650	475	350	200	850	850	950	900	850	750	800	800	800	700	500
Acryic																					
RPM	12000	NA	12000	12000	12000	12000	10000	10000	NA	NA	10000	10000	12000	12000	12000	12000	8000	12000	12000	12000	12000
Feed	900	NA	1400	1400	1300	1100	1000	600	NA	NA	950	950	1400	1300	1200	1000	1000	1100	1100	1000	800
DOC	2	NA	2.5	2	2	2	2	2	NA	NA	2.5	2.5	2.5	2	2	2	2	1.5	1.5	2	1.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	450	NA	700	700	650	550	500	300	NA	NA	475	475	700	650	600	500	500	550	550	500	400
Soft Metal																					
RPM	12000	NA	15000	15000	15000	15000	15000	10000	NA	NA	15000	15000	15000	15000	15000	15000	12000	15000	15000	15000	15000
Feed	700	NA	850	780	900	700	400	300	NA	NA	600	600	900	850	800	650	600	650	650	600	650
DOC	1.2	NA	1.2	1	1	1	1	0.75	NA	NA	0.75	0.75	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	350	NA	425	390	450	350	200	150	NA	NA	300	300	450	425	400	325	300	325	325	300	325

DATA SNAPSHOT
1.5KW SPINDLE (IN PROGRESS)

	1/8th Upcut	1/8th Downcut	1/8th Ball nose	1/8th TBN 0.25r	1/8th TBN 0.5r	1/8th TBN 1r	1/8th O Flute	1/4 Upcut	1/4 Downcut	1/4 Compression	1/4 Ball Nose	1/4 Bull Nose	1/4 TBN 0.25r	1/4 TBN 0.5r	1/4 TBN 0.75r	1/4 TBN 1r	1/4 O Flute	20 Deg engravin	30 Deg V engrav	60 Deg v	90 Deg V
Bit dia for calc	3.175	3.175	3.175	0.5	1	2	3.175	6.35	6.35	6.35	6.35	6.35	0.5	1	1.5	2	6.35	0.2	0.2	6.36	6.35
Stepover	40%	40%	10%	10%	10%	10%	40%	40%	40%	40%	10%	10%	10%	10%	10%	10%	40%	10%	10%	40%	40%
Warning										Only to be used if your machine is capable of the depth											
Bit Diameter	3.175	3.175	3.175	3.175	3.175	3.175	3.175	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35				
MDF																					
RPM	15000	15000	15000	15000	15000	15000	15000	15000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1400	980	2200	2200	2000	1700	1600	1000	800	600	1800	1800	2000	1900	1800	1700	1900	1700	1700	1500	1300
DOC	3	2.1	3	3	3	3	2	3	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	700	490	1100	1100	1000	850	800	500	400	300	900	900	1000	950	900	850	950	850	850	750	650
Softwood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1600	1120	2200	2200	1900	1700	1600	1000	900	500	2100	2100	2100	2000	1900	1800	2000	1700	1700	1500	1300
DOC	2.5	1.75	2.5	3	3	3	2	3	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	800	560	1100	1100	950	850	800	500	450	250	1050	1050	1050	1000	950	900	1000	850	850	750	650
Hardwood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	900	630	1400	1400	1300	1200	950	800	700	300	1300	1300	1400	1300	1200	1100	1200	1200	1200	1100	1000
DOC	2.5	1.75	2.5	3	3	3	2	1.5	1.05	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	450	315	700	700	650	600	475	400	350	150	650	650	700	650	600	550	600	600	600	550	500
Soft Plywood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1500	1050	2200	2200	2100	1900	1500	950	800	500	2000	2000	2200	2100	2000	1800	1800	1700	1700	1500	1300
DOC	2.5	1.75	2.5	3	3	3	2	3	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	750	525	1100	1100	1050	950	750	475	400	250	1000	1000	1100	1050	1000	900	900	850	850	750	650
Hard Plywood																					
RPM	15000	15000	15000	15000	15000	15000	15000	12000	12000	12000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000
Feed	1100	770	1900	1900	1800	1600	1300	950	700	400	1700	1700	1900	1800	1700	1500	1600	1600	1600	1400	1000
DOC	2.5	1.75	2.5	3	3	3	2	2	1.4	5	2.5	2.5	2.5	2.5	2.5	2.5	2	2	2	2.5	2
Stepover	1.27	1.27	0.32	0.05	0.10	0.20	1.27	2.54	2.54	2.54	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	550	385	950	950	900	800	650	475	350	200	850	850	950	900	850	750	800	800	800	700	500
Acryic																					
RPM	12000	NA	12000	12000	12000	12000	10000	10000	NA	NA	10000	10000	12000	12000	12000	12000	8000	12000	12000	12000	12000
Feed	900	NA	1400	1400	1300	1100	1000	600	NA	NA	950	950	1400	1300	1200	1000	1000	1100	1100	1000	800
DOC	2	NA	2.5	2	2	2	2	2	NA	NA	2.5	2.5	2.5	2	2	2	2	1.5	1.5	2	1.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	450	NA	700	700	650	550	500	300	NA	NA	475	475	700	650	600	500	500	550	550	500	400
Soft Metal																					
RPM	12000	NA	15000	15000	15000	15000	15000	10000	NA	NA	15000	15000	15000	15000	15000	15000	12000	15000	15000	15000	15000
Feed	700	NA	850	780	900	700	400	300	NA	NA	600	600	900	850	800	650	600	650	650	600	650
DOC	1.2	NA	1.2	1	1	1	1	0.75	NA	NA	0.75	0.75	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.5
Stepover	1.27	NA	0.32	0.05	0.10	0.20	1.27	2.54	NA	NA	0.64	0.64	0.05	0.10	0.15	0.20	2.54	0.02	0.02	2.54	2.54
Plunge	350	NA	425	390	450	350	200	150	NA	NA	300	300	450	425	400	325	300	325	325	300	325

DATA SNAPSHOT
MACHINES AND MULTIPLIERS

Machine	Multiplier
Sainsmart	
3018	0.4
3018 v2	0.5
3020	0.6
3030	0.8
4030 v1	0.85
4040 Reno	0.6
4030 v2	0.9
4040 Pro	0.6
4040 Pro Max	0.7
6050	0.8
4x4	0.8
FoxAlien	
3018	0.4
XE 4040	0.6
4040 Masuter	0.5
4040 Masuter Pro	0.6
4040 Masuter 3	0.6
4040 Masuter 3s	0.7
Vasto (all)	1
XE Pro	0.9
XE Pro Linear	1
3020 woodmans	0.65
Nymo Labs	
TwoTrees	
YoraHome	
Generic	
3018	0.4
3020	0.6