THC Settings Table Documentation V.1

Introduction

The purpose of this documentation is to explain the basics of the new Torch Height Control Settings in Mach4. Each row in the table can be clicked on, Mach4 will then register the settings automatically in the THC Settings. The raw .CSV file can be edited to add custom materials/values so they can be used in Mach4.

Definitions:

Amperage---*The maximum amount of power a plasma unit is capable of. This value can be found in the manual for the individual plasma unit.*

Kerf Width---*In user-defined units (in/mm), the width of material that is removed by the cut the plasma unit makes.*

Torch-On Height---*In user-defined units (in/mm), the position (in the Z axis) at which the plasma unit is instructed to turn on.*

Pierce Height---*In user-defined units (in/mm), the position (in the Z axis) at which the initial pierce begins.*

Cut Height---*In user-defined units (in/mm), the height at which the THC is turned on. The value is determined by physically measuring if you do not have the manual for the individual plasma unit.*

Pierce Delay--- *In milliseconds, Pierce Delay is the amount of time allotted for the THC to pierce through the material. Example: 0.5 = ½ second should be 500 = 1/2 second. This value is determined in the user manuals for individual plasma units.*

Anti-Dive Rate---*Percentage of programmed (feed rate * (FRO / 100)) at which AntiDive will be disabled.*

Target Voltage---*In volts, optimal voltage to cut at. Auto THC Adjust the torch up and down to try to get to this point.*

Please note that all of the values in the existing table are all default values based on standard plasma units. To automatically configure the THC Settings using the Tables wizard, simply click on the row you want and it will highlight in green, and you will see the values in the THC Settings.

mcTables - DefaultTable	Amperage	Feed Rate	Kerf Width	Torch On Height	Pierce Height	Cut Height	Pierce Delay	Antidive Rate	Adjust Rate	Target Voltage
Default	65	190	0.065	0.15	0.1	0.1	100	30	100	120
Mild Steel 10Ga.	65	190	0.065	0.15	0.15	0.06	100	30	100	125
Mild Steel 3/16	65	140	0.067	0.15	0.15	0.06	200	30	100	126
Mild Steel 1/4	65	90	0.07	0.15	0.15	0.06	500	30	100	127
Mild Steel 3/8	65	45	0.076	0.15	0.15	0.06	700	30	100	130
Mild Steel 1/2	65	30	0.088	0.15	0.15	0.06	1200	30	100	135
Mild Steel 5/8	65	23	0.095	0.15	0.15	0.06	2000	30	100	138
StainLess Steel 10Ga.	65	240	0.062	0.15	0.15	0.06	100	30	100	125
StainLess Steel 3/16	65	155	0.068	0.15	0.15	0.06	200	30	100	126

Values for individual plasma units is not reflected in the default table, but can be added through editing the table itself. You will find this table in the new *C:\Mach4Hobby\Tables* folder, as depicted in **Fig-1.0**:

Fig-1.0
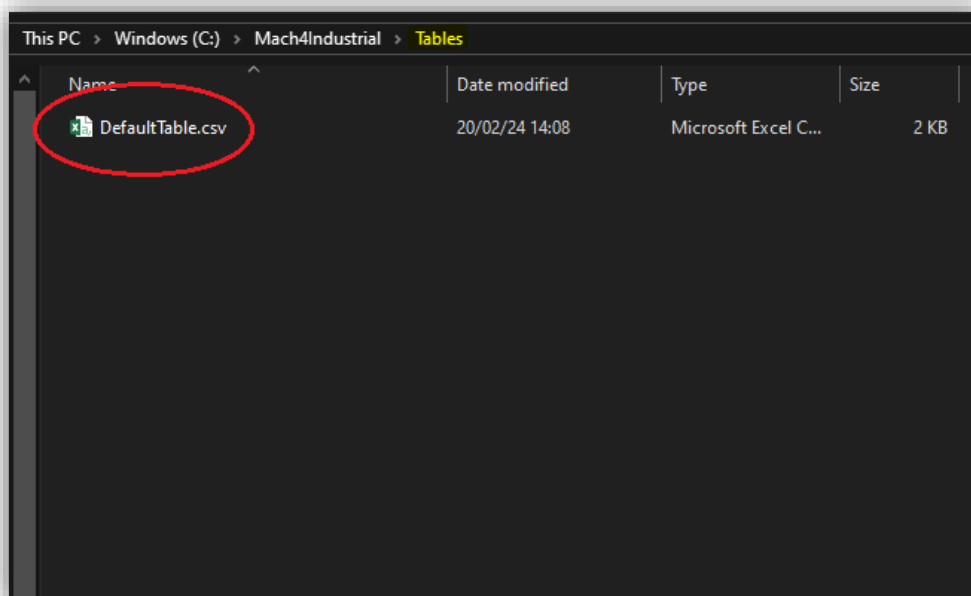
To edit this table so it reflects in Mach4 for use for your individual plasma unit, double click the *DefaultTable.csv* file to open it. This file requires spreadsheet software such as Microsoft Excel or OpenOffice Calc to be able to edit. Once opened, the table will look like what is depicted in **Fig-1.1:**

Registers	Amperage	Feed Rate	Kerf Width	iRegs0/nf/thc/TorchOnHeight	iRegs0/nf/thc/PierceHeight	iRegs0/nf/thc/CutHeight	iRegs0/nf/thc/PierceDelay	iRegs0/nf/thc/AntiDiveRate	iRegs0/nf/thc/AdjustRate	iRegs0/nf/thc/TargetVoltage
Process	Amperage	Feed Rate	Kerf Width	Torch On Height	Pierce Height	Cut Height	Pierce Delay	Antidive Rate	Adjust Rate	Target Voltage
Default	65	190	0.065	0.15	0.1	0.1	100	30	100	120
Mild Steel 10Ga.	65	190	0.065	0.15	0.15	0.06	100	30	100	125
Mild Steel 3/16	65	140	0.067	0.15	0.15	0.06	200	30	100	126
Mild Steel 1/4	65	90	0.07	0.15	0.15	0.06	500	30	100	127
Mild Steel 3/8	65	45	0.076	0.15	0.15	0.06	700	30	100	130
Mild Steel 1/2	65	30	0.088	0.15	0.15	0.06	1200	30	100	135
Mild Steel 5/8	65	23	0.095	0.15	0.15	0.06	2000	30	100	138
StainLess Steel 10Ga.	65	240	0.062	0.15	0.15	0.06	100	30	100	125
StainLess Steel 3/16	65	155	0.068	0.15	0.15	0.06	200	30	100	126
StainLess Steel 1/4	65	80	0.073	0.15	0.15	0.06	500	30	100	127
StainLess Steel 3/8	65	40	0.076	0.15	0.15	0.06	700	30	100	131
StainLess Steel 1/2	65	26	0.09	0.15	0.15	0.06	1200	30	100	136
Aluminum 1/16	65	365	0.073	0.15	0.15	0.06	100	30	100	121
Aluminum 1/8	65	280	0.074	0.15	0.15	0.06	100	30	100	124
Aluminum 1/4	65	105	0.076	0.15	0.15	0.06	500	30	100	131
Aluminum 3/8	65	50	0.083	0.15	0.15	0.06	700	30	100	135
Aluminum 1/2	65	35	0.091	0.15	0.15	0.06	1200	30	100	139
Mild Steel 10Ga.	85	352	0.075	0.2	0.2	0.08	0.2	30	100	118
Mild Steel 3/16	85	249	0.075	0.2	0.2	0.08	0.2	30	100	119
Mild Steel 1/4	85	160	0.075	0.2	0.2	0.08	0.5	30	100	121
Mild Steel 3/8	85	77	0.075	0.2	0.2	0.08	0.5	30	100	123
Mild Steel 1/2	85	46	0.075	0.24	0.24	0.08	0.6	30	100	129
Mild Steel 5/8	85	29	0.075	0.24	0.24	0.08	0.75	30	100	133
Mild Steel 3/4	85	24	0.075	0.3	0.3	0.08	1.3	30	100	136
Custom1/2	85	150	0.075	0.2	0.2	0.06	0.1	30	100	116
Custom 3/8	85	65	0.075	0.2	0.2	0.08	0.5	30	100	122

Fig-1.1

Also shown in Fig-1.1, you will see spaces to add custom materials/values for your plasma unit. Refer to your individual plasma unit's manual for these values. Be aware that while you can delete the provided default values, it is not recommended. If you choose to do so for clarity in the wizard, make sure you copy these values in another spreadsheet or document so you will always have them.

From left to right, you would enter these values:

-Process (name of the material and thickness)

-Amperage (determined by your individual plasma unit's max output of power)

-Feed Rate (user defined)

-Kerf Width (determined by the amount of material removed from the cut)

-Torch-On Height (determined by your individual plasma unit's product manual)

-Pierce Height (determined by your individual plasma unit's product manual)

-Cut Height (determined by your individual plasma unit's product manual)

-Pierce Delay (determined by your individual plasma unit's product manual)

-Anti-Dive Rate (normally 30 is the standard value)

-Adjust Rate (normally 100 is the standard value)

-Target Voltage (determined by your individual plasma unit's product manual)

When you are finished editing your custom values, click 'File', then 'Save' or click the Floppy Disk icon at the top right-hand corner of the window. →
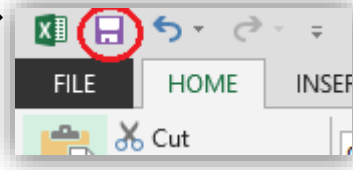
Important to Note: Please do not change or modify the first three rows as shown in **Fig-1.2.** Also do not add or delete any columns from the spreadsheet as any change like that will "break" the Tables Wizard.

	A	B	C	D	E	F	G	H	I	J	K
1	Registers	Amperage	Feed Rate	Kerf Width	iRegs0/nf/thc/TorchOnHeight	iRegs0/nf/thc/PierceHeight	iRegs0/nf/thc/CutHeight	iRegs0/nf/thc/PierceDelay	iRegs0/nf/thc/AntiDiveRate	iRegs0/nf/thc/AdjustRate	iRegs0/nf/thc/TargetVoltage
2	Process	Amperage	Feed Rate	Kerf Width	Torch On Height	Pierce Height	Cut Height	Pierce Delay	Antidive Rate	Adjust Rate	Target Voltage
3	Default	65	190	0.065	0.15	0.1	0.1	100	30	100	120
4	Mild Steel 10Ga.	65	190	0.065	0.15	0.15	0.06	100	30	100	125
5	Mild Steel 3/16	65	140	0.067	0.15	0.15	0.06	200	30	100	126
6	Mild Steel 1/4	65	90	0.07	0.15	0.15	0.06	500	30	100	127
7	Mild Steel 3/8	65	45	0.076	0.15	0.15	0.06	700	30	100	130
8	Mild Steel 1/2	65	30	0.088	0.15	0.15	0.06	1200	30	100	135
9	Mild Steel 5/8	65	23	0.095	0.15	0.15	0.06	2000	30	100	138
10	StainLess Steel 10Ga.	65	240	0.062	0.15	0.15	0.06	100	30	100	125
11	StainLess Steel 3/16	65	155	0.068	0.15	0.15	0.06	200	30	100	126
12	StainLess Steel 1/4	65	80	0.073	0.15	0.15	0.06	500	30	100	127
13	StainLess Steel 3/8	65	40	0.076	0.15	0.15	0.06	700	30	100	131
14	StainLess Steel 1/2	65	26	0.09	0.15	0.15	0.06	1200	30	100	136
15	Aluminum 1/16	65	365	0.073	0.15	0.15	0.06	100	30	100	121
16	Aluminum 1/8	65	280	0.074	0.15	0.15	0.06	100	30	100	124
17	Aluminum 1/4	65	105	0.076	0.15	0.15	0.06	500	30	100	131
18	Aluminum 3/8	65	50	0.083	0.15	0.15	0.06	700	30	100	135
19	Aluminum 1/2	65	35	0.091	0.15	0.15	0.06	1200	30	100	139
20	Mild Steel 10Ga.	85	352	0.075	0.2	0.2	0.08	0.2	30	100	118
21	Mild Steel 3/16	85	249	0.075	0.2	0.2	0.08	0.2	30	100	119
22	Mild Steel 1/4	85	160	0.075	0.2	0.2	0.08	0.5	30	100	121
23	Mild Steel 3/8	85	77	0.075	0.2	0.2	0.08	0.5	30	100	123
24	Mild Steel 1/2	85	46	0.075	0.24	0.24	0.08	0.6	30	100	129
25	Mild Steel 5/8	85	29	0.075	0.24	0.24	0.08	0.75	30	100	133
26	Mild Steel 3/4	85	24	0.075	0.3	0.3	0.08	1.3	30	100	136
27	Custom1/2	85	150	0.075	0.2	0.2	0.06	0.1	30	100	116
28	Custom 3/8	85	65	0.075	0.2	0.2	0.08	0.5	30	100	122
29											
30											
31											
32											

Fig-1.2