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Fusion Manufacture

Talk shop with the Fusion (formerly Fusion 360) Manufacture Community. Share tool strategies, tips, get advice and solve problems together with the best minds in the industry.

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EMCO Mill Post Processor

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Thomie.Timmons 5637 Views, 37 Replies
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08-24-2015 05:09 AM

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EMCO Mill Post Processor

I help manage Reynoldsburg Battelle FabLab and we have an EMCO Concept Mill 55 and an EMCO Concept Turn (CNC Lathe).

I would like to get a post for Fusion 360 that will work with these machines. I have tried the generic post but get multiple errors.

I have contacted our EMCO agent and he is willing to work with AutoCad to create a post.

Does anyone already have a post?

or

Solution suggestion?

or

Contact info to AutoDesk?

I have been unable to find a solution on the support site.

Any help would be greatly appreciated!

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37 REPLIES

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LibertyMachine in reply to: Thomie.Timmons



The first (and best) thing you can/should do is be able to provide us with samples of code that have been run successfully with your prior software package. The Fusion post processor takes very well

to customization and can be adapted to most any machine control.

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So, sample programs and an even better addition would be an operators manual describing the desired format of the program

Seth Madore
Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.

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MESSAGE 3 OF 38



4

Thomie.Timmons in reply to: LibertyMachine

08-29-2016 12:12 PM

Working on getting these to post. Thanks. I am looking forward to your help!

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4

Thomie.Timmons in reply to: Thomie.Timmons

08-30-2016 10:20 AM



The attached text file has the syntax outline of how the programs are written. On the attached PDF guides, please have the note the following pages which indicate the G & M codes we use to do programming:



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Lathe: Pg. 21, 22, 23 and have them note the program on page 31 as an example program.

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Mill: Pg. 21, 22, 23 and have them note the program on page 35 as an example program.

If you need any further information please let me know. 😊

📎 Concept Mill 55 Fanuc 21 ATC Step by Step.pdfPreview file703 KB

📎 Concept Turn 55 Fanuc 21 INDUSTRY and EDU.PDFPreview file652 KB

📎 Sample NC File for FANUC 21.txtPreview file3 KB

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MESSAGE 5 OF 38



LibertyMachine in reply to: Thomie.Timmons

08-30-2016 11:51 AM

Thank you for the info. I will try to pick away at it over the next couple of days. For some reason, things got really busy for me at work, cutting in on my free time, lol

Seth Madore
Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.

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MESSAGE 6 OF 38



Steinwerks in reply to: Thomie.Timmons

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08-30-2016 01:38 PM

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Seeing as how you have the Fanuc emulation version, have you tried the Generic Fanuc posts yet? They may be very close already.

Neal Stein

AUTODESK® EXPERT ELITE

New to Fusion 360 CAM? [Click here for an introduction to 2D Milling](#), [here for 2D Turning](#).

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[Instagram](#) and [YouTube](#)

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xanderluciano in reply to: Thomie.Timmons

08-30-2016 01:56 PM

[Deleted]

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xander.luciano in reply to: Thomie.Timmons



Hey, welcome to the forums!
Autodesk Community

I looked through the manual and sample Gcode you provided and everything looks fairly standard in FUSION 360. FEATURES | WHY FUSION? ▾ | LEARN & SUPPORT | FREE TRIAL both. I don't see any G or M codes that stick out as being different. G28 you might want to be careful when that runs depending on how your machine travels home (some machines will zero return all Axis with a G28 instead of moving to the axis specified, the manual doesn't seem to indicate that being the case though). Beyond that, the only M codes that caught my attention were M25, M26, M71, and M72. If you need any of those the post will need to be customized to include them.

Other than that, I would say just post out a program using the generic fanuc post processor and dry run that at 5% rapid and 5% feed to make sure it's safe.

You said, "I have tried the generic post but get multiple errors." Which generic post did you try? What errors did you receive? Do you mean machine side errors or the posted g code file had errors?

Let me know if I can help in any other way! Remember to use kudos and accept solutions to help make the best of this forum 😊 Welcome to the community!

Best,

AUTODESK.

Xander Luciano

CAM Content Developer

If my post is helpful, press the Kudo button - If it resolves your issue, press Accept as Solution!

Quick Tips: [When to resselect CAM geometry](#) | [Understanding Smoothing in CAM](#) | [Adaptive Facing](#) | [Online GCode Viewer](#)

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4

Thomie.Timmons in reply to: [xander.luciano](#)

08-31-2016 05:36 AM

[@xander.luciano](#) wrote:



Other than that, I would say just post out a program using the generic fanuc post processor and dry run that at 5% rapid and 5% feed to make sure it's safe.

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You said, "I have tried the generic post but get multiple errors. Which generic post did you try? What errors did you receive? Do you mean machine side errors or the posted g code file had errors?"

We ran the Gerenic Fanuc post and received line code error, fixed that line manually and received another line code error this happen about 5 times and we could not get it to work. I REALLY do not want to have to manually dig through and change code for every part. I would say I know enough about code to get myself into trouble and most the users in this lab, with a few exceptions, are about the same.

We are try to go as simple as possible and were hoping for a machine specific post (or clear "clean" settings) that need minimal to no code change: "art to part" We have a Roland MDX40 that works like this on a smaller scale.

BACK STORY: We received these machines to train students in basic Fanuc control systems and can make a great basic "widget" but our greater need is to take a CAD file to Part which the current software cannot do. We were very excited when we discovered Fusion 360...well, until we got all the line errors. lol Could be we are looking for the holy grail.

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MESSAGE 10 OF 38



LibertyMachine in reply to: Thomie.Timmons

08-31-2016 05:41 AM

I don't see it to be a huge deal to modify the post to spit out what you need. The info you provided is very helpful. Do you happen to recall what the code was that it error-ed out on and what you changed it to to work?

Seth Madore
Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.

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MESSAGE 11 OF 38



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Thomie.Timmons in reply to: LibertyMachine

08-31-2016 06:02 AM

No its been a while and a couple dozen project earlier 😊 , but I might be able to replicate it if I can find that file (which I have been searching for this forum thread). I will be meeting with the person who I have been working on this with who has a better chance of having saved the code. Unfortunately, he is unavailable until after the 9th of this month.

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MESSAGE 12 OF 38



11

LibertyMachine in reply to: Thomie.Timmons

08-31-2016 06:06 AM

Eh, it's all good. With any luck I should have a mill post for you sometime today. Will you be able to put it through its paces relatively soon, or will that also not be until the 9th?

Seth Madore
Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.

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Thomie.Timmons in reply to: LibertyMachine



08-31-2016 06:11 AM

I can as early as Friday or most of next week.

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MESSAGE 14 OF 38



LibertyMachine in reply to: Thomie.Timmons

08-31-2016 10:35 AM



Here is a mill post processor. After reviewing the documents you provided, I noted a few things in particular:

Tool change contained all the info: G43 T1 H1 M6 (very similar to a Tormach)

No coolant support? I thought this bit was weird, but it (the docs) skipped right over those M codes (M8, M9)

No Spindle Orient? So M19 was omitted

Cutter comp is supported, but it calls out a D+10 value (H1 for height, H10 for comp)

So yeah, not quite a generic Fanuc, although at first glance one would be entirely in their rights to think that.

Proceed with extreme caution. This post was bits and pieces of a couple different ones cobbled together. I did run it through Fusion and a simple part (square contour pass and a drilled hole) and the code looked solid, at least to get you off the ground

Seth Madore

Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.



Emco Concept Mill55.cps

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4

Thomie.Timmons in reply to: LibertyMachine

08-31-2016 11:06 AM

Great! I will try it out and let you know the results *keeps fingers crossed*

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MESSAGE 16 OF 38



4

Thomie.Timmons in reply to: Thomie.Timmons

09-07-2016 10:48 AM

Huh, your very good.

I ran one model with your post and got no errors. Since I am having a hard time believing my good luck I will be trying it out again on a different model Saturday when my colleague returns.

I will get you that feedback ASAP. We can then move on to a post for the Lathe. I cannot tell you how much this has helped! Thanks!

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FUSION 360

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MESSAGE 17 OF 38



LibertyMachine in reply to: Thomie.Timmons

09-07-2016 11:08 AM

@thomie.timmons wrote:

Huh, your very good.

I ran one model with your post and got no errors. Since I am having a hard time believing my good luck I will be trying it out again on a different model Saturday when my colleague returns.

I will get you that feedback ASAP. We can then move on to a post for the Lathe. I cannot tell you how much this has helped! Thanks!

Like the old saying goes; Even a blind squirrel finds an acorn once in a while....

I'm glad it is working for you. Let me know if you run into any errors. Don't get too comfortable with how it is posting out until you have many parts under your belt. I would feel terrible if you were able to cook up the perfect storm of tool changes and geometry that would lead to the code being less than desired. That being said, I feel rather confident in what you are going to obtain each time.

Let me know about the lathe post. I do have some concerns. Namely, I believe your sample code is using canned turning cycles, which Fusion does not currently support, at least to my knowledge. But, we should still be able to get you something....

Seth Madore
Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.

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LibertyMachine in reply to: Thomie.Timmons
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09-08-2016 10:46 AM

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@Thomie.Timmons here is a starter lathe post for you to try. I say "starter" for a few reasons. The documentation you have provided is not very clear on these issues:
G50 support. G50 is a max spindle speed callout and prevents the machine from trying to go faster than a certain speed. Currently setup to output that G code as well as a numerical value
Zero return points. The sample code makes no use of G28 or G53 zero return points, instead using a simple G0 Z2. I'd like to make sure that is what you actually want before I remove the G28's
Drilling support: Your info didn't have any program samples using drilling cycles. What I did find suggests that a G83 is supported, but not a G81. Could you confirm?
The program samples also did not have any M08 or M09 for coolant control, but I added them anyway.

Like I mentioned in my previous post; Fusion doesn't currently support canned turning cycles, so the code will be longer than the samples provided. I'm not thinking you are going to have an issue holding the program in the control, but just beware that the tutorial provided with the machine won't mesh up just right with the posted code from Fusion.

I'll wait to hear back from you as to where the lathe is going to alarm out. I will modify as needed after that.

Seth Madore
Owner, Liberty Machine, Inc.
Good. Fast. Cheap. Pick two.

📎 Emco Concept Turn 55.cps ↴

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Thomie.Timmons in reply to: LibertyMachine



Sorry, RL had me underwater for a while and my attention was elsewhere:
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This is what I found out through our vendor support:

FUSION 360
Concept Turn 60

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G92 max spindle speed

We don't normally use max spindle speeds on the Concept Turn 60 table top CNC Machine. If they want to use it they would program a G92 S???? S=Max spindle speed

Return Zero

G00 G28 U0 will take the X Home

G90 Z3.00 will take Z 3inch out from face of workpiece

M30 end of program

Drilling

G95

G0 X0

G0 Z.1

G83 Z-.2 R.1 Q0500 F.003 Q0500 = .050 No Decimal on the Lathe

G80 Cancel drilling cycle

No coolant capabilities.

+++++

Hope this helps refine before we run a test.

The Mill post is still doing well for us, thanks!

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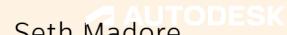
MESSAGE 20 OF 38



LibertyMachine in reply to: Thomie.Timmons

10-06-2016 11:37 AM

Huh, I was wondering what happened to you. Glad to know that the Mill post is working well. Always nice to get feedback. I will pick away at the lathe post over the next several days and get those modifications in.



Seth Madore

Owner, Liberty Machine, Inc.

Autodesk Community member



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