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For Metal Processors & Fabricators

FastCAM® PROFESSIONAL SYSTEM (Draw, Nest, Cut) Improvements from previous versions to Current v5.10

Summary of New and Recent Features **for FastCAM® v5.10 Professional Edition:** :

- a. Zero gap common cutting in FastNEST®.
- b. More Bridging Options (4 types including the overcut bridge). Feature now in FastNEST®.
- c. Service email containing all support files.
- d. Enhanced printing functionality for full printer previews on multiple printers and supporting multiple paper sizes, landscape, portrait and colour.
- e. STRUCAD file input.
- f. Common cut pairs.
- g. Kerf compensation on output.
- h. Align internal exits with next entry.
- i. Small hole changes with new HPR260 torches.
- j. Running exits on holes.
- k. Support for Mouse Wheel zooming in FastCAM® and FastNEST® (**see quote below).
- l. Two stage entry for laser.
- m. "Multi Pass" cutting. This is varying multi torch cutting as opposed to a fixed number of torches in a single pass at a fixed spacing.

Note that Items a. b. & m. require an update of both the software and the security key. Continue reading for more information on these new features.

***"There's a lot of great new stuff in this release, especially the bridging and common cut. But I have to admit my favorite new feature is the ability to use the third mouse button, the middle wheel. I love zooming in and out with it, and more importantly, clicking and dragging around the screen. I showed both of these two new mouse wheel button features to Colorado Iron and Metal and both guys were very impressed. Sometimes little things like this can make a big difference day-to-day.*
Ross Trotcky, FastCAM Service and Support Manager, Chicago.

Historical Summary of new and recent sundry minor bug fixes, improvements and customer requested changes.

- a. DWG input
- b. Linearization of FastPATH for higher performance on large files.
- c. Gas Axe.
- d. Updates to DWG format.
- e. Collision detection option.
- f. Optional Pervasive SQL data base records of all nests kept by FastNEST®.
- g. For laser companies, we have added the ability to reduce the feedrate on entries by a defined % of the current feedrate. It is shown under the heading ENTRY in the Specials Tab.

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We list features that users have told us add value :

- **Nests can be cut in Part or by Process.** This means that you can now Cut nests on a 'Process by Process' basis (Eg, Mark entire nest, then Drill entire nest, finally Cut entire nest), OR you can process Part by Part, meaning that each part will be processed before moving onto the next part (Eg, Mark, Drill, Cut).
- **New SLOT function** (instead of drawing by hand using lines/points).
- Round corner function will now work with internal corners on a corner.
- The Template will now print large filenames in the index without overlapping.
- Rapids Option to move from one cut to another (instead of using RAPID). Implements automatic chain cutting for some parts. A big time saver.
- Improved stitch cutting.
- Added breakout tabs to FastNEST along with the ability to automatically add tabs into parts in nesting.
- New Erase by Layer function (instead of entity). A very popular improvement!
- Improved traps for overlaps for particular scenarios in nesting.
- A blocked line can now be lengthened.
- Nesting Long Thin parts first by default can be turned off. (Usually long parts have a higher internal priority as it generally is sensible to put them down first. In the case of very full nests or parts which are almost exactly plate length, this can produce quite different nests.)
- Now compatible with USB technology.
- **Database record keeping now available** – see Optional EXTRAS listing.

If you're working from an early version of FastCAM, the difference in using FastCAM v5.10 is dramatic!

- 4 x Faster Loading.
- NC to DXF conversion.
- Reads multi-line text in a DXF file.
- Repetitive block copy function.
- Round Corner function.
- Orphan function to eliminate separate entities.
- Read/Nest Unix NC code files.
- **Improved traps** for overlaps for particular scenarios in nesting.
- **Automatic Slot Command** in FastCAM Drawing Editor allows you to simply select the length, width and position for automatic Slot creation.

Cut Short Rapids. FastCAM function where the part distance is small if the distance is small and there is a direct path, you can instruct the postprocessor not to pierce again but to cut the short rapid to the next part.

- **Improved round** corners to allow for internal corners.
- **CAD Clean** expanded to fix crossovers and gaps under 0.4mm
- **Hole Avoidance** has been improved with better logic for laser processing.

- **Text COPY and DELETE** have been added. COPY is a fast way to duplicate text at the same position and angle.
- **Entity identify function added** using mouse right click over entity. Plots in yellow and shows entity number.
- **When you are showing multiple torches** in FastNEST, the other torches are copied (shadowed) on the screen and in the plot.
- **The circle centre control points are now distinguished** in green.
- **A system of automatic line generation** has been introduced to all postprocessors where the radius exceeds RMAX. Now if an arc (not a full circle) is to be output with a radius exceeding RMAX, a number of lines are output to approximate the arc.

NEW Printing Options

For those customers who want totally black printing on their color printers this feature is now available in the new version via a special setup switch. (The orientation problem was fixed in an earlier patch).

NEW FastCAM® Gas-Axe Technology for Improved Health & Safety

Our FastCAM® R&D program continues to offer new developments as part of our upgrade program. One feature – Gas Axe Technology – will be of great benefit because it **can significantly improve both operator safety and productivity**.

"Gas Axe" is named after the familiar term used by boilermakers for the traditional hand held Oxy-cutting torch. In practice most nest skeletons are cut up manually using either the machine or a hand torch. FastCAM Gas Axe will selectively apply post cuts to any nest so that the skeleton can be removed in small sections rather than trying to lift off entire remnants in one piece.

Skeletons left from the cutting process can be large and unwieldy. They can also present a danger to operators clearing the machine after cutting, as well as, time consuming to remove and cut by hand. The FastCAM Gas-Axe function will automatically reduce the skeleton to manageable sizes for removal and placement in scrap containers.

The function is enabled either automatically using a grid to set the size and location of cuts or manually with the user selecting the post cut locations. The automatic skeleton breakup can also be manually edited with a simple point and click to add or remove cuts

In normal operation the machine will return to the home position after cutting the nest, parts are then removed to avoid being nicked by the Gas Axe cutting process. Once this is complete pressing "cycle start" moves the machine to each new cut location and slices through the web of the skeleton.

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NEW Service Email Button for Easier and Faster Support

FastCAM is now intelligent enough to "trap" all the files we need for diagnostic, zip them and automatically attach them to an email. **It's all automatic!**

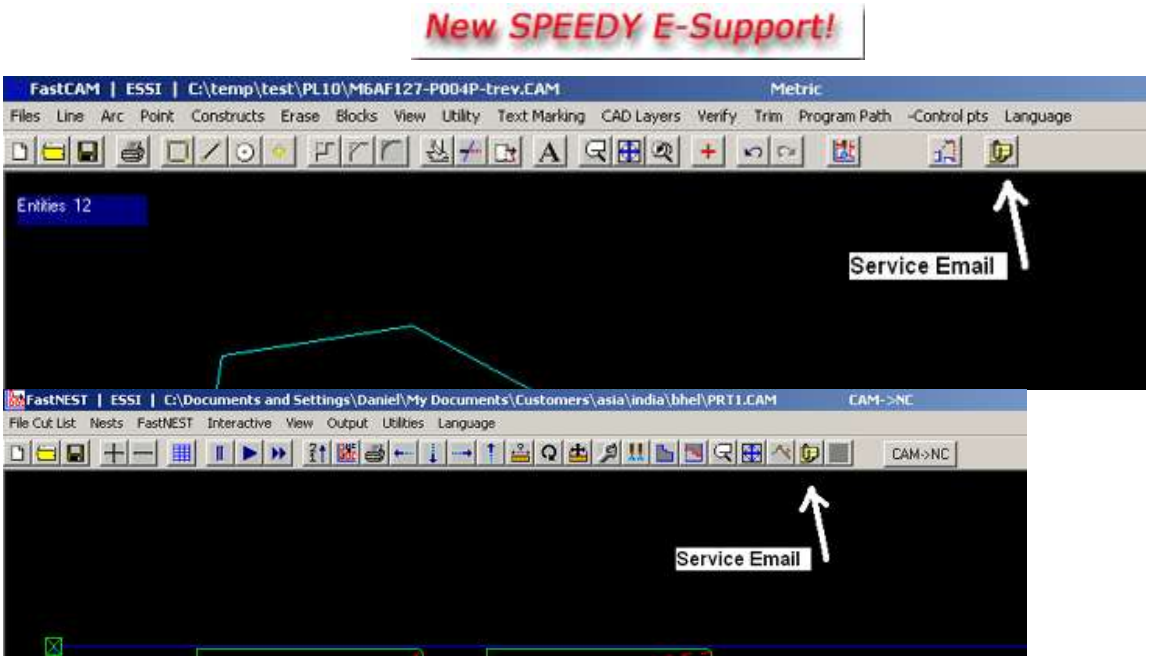
This new Email Service Button has been added to the FastCAM v5.9+ and above releases.

Service Members* are naturally given priority with regards to requests for assistance but delays can occur in getting enough information to replicate and diagnose the problem before we can begin to solve it. Our engineers sometimes go back and forth trying to obtain enough information.

We have worked hard to automate the support process as much as possible. Our aim is to offer the fastest time possible on resolutions.

With the new method **the user only needs to Press the Email Service Button** and complete a short form.

* **ALL USERS can use this Service Email Button.** Non-Service members will be quoted a per incident support cost for approval. No work is undertaken and billed without approval and a Purchase Order.



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FastCAM® PROFESSIONAL SYSTEM (Draw, Nest, Cut)
New Bridging Feature in v5.10

FastCAM® v5.10 is now available to help you reduce pierces.

Fewer pierce points are a current focus. Customers tell us they want savings in all 3 areas; time, plate and piercing. FastCAM® v5.10 gives you options to achieve a result based on the varying criteria of each job. These new features are INCLUDED in the new FastCAM® v5.10 Professional Edition.

Bridging has always been possible in the FastCAM® drawing editor working on a whole nest drawing.

In v5.10, there are now FOUR different types that will be included in the Professional Edition.

Bridging can be combined with other processes such as line marking and text marking.

4 Types of Bridging
in FastCAM v5.10 Upgrade

- 1) **(Traditional) Bridging.** A simple positive bridge is where parts are connected together linked by two parallel cuts (bridge). Bridges allow continuous cutting and are traditional in many shipbuilding applications. The result is much faster cutting. Parts are left joined, but this can be an advantage in some circumstances. These include making assemblies, moving the parts as a group and minimizing part movement (appropriate for lighter materials or thinner materials).
- 2) **Overcut or Negative Bridging** allows for continuous cutting with the immediate separation of parts. This is a FastCAM® invention that has the advantages of bridging but cuts out the bridge on the return. Previously available in the FastCAM® drawing editor, this function is now available in FastNEST® where it is perhaps more intuitive. Selecting this function will deliver a speed increase on many nests and result in a reduction in piercing making it a feature of interest to a wider range of customers.
- 3) **Skip Bridging.** Here you have additional piercing and the parts are held together by a bridge but the bridge is not cut. This can be used for routing aluminium, as it prevents vibration but does involve piercing on the edge, which is fine for routing. You actually do much more piercing and save nothing on cutting, so it is a device mainly to prevent vibration and movement. A simple gap bridge forms much the same function for lighter materials where the resultant tabs can be broken manually. In this case, additional pierces are required rather than fewer. (This function is aimed at aluminium routers but can be used in any instance where the programmer does not want the bridge to be cut).
- 4) **Skip with Entries.** As with Skip Bridging, but pierces are away from the part edge.

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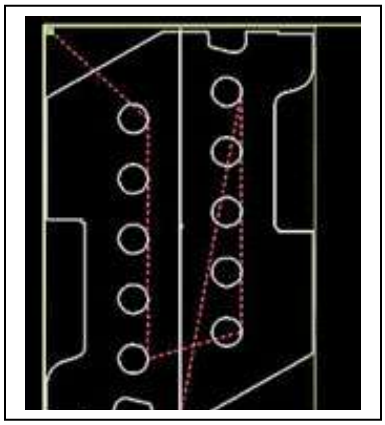
FastCAM® PROFESSIONAL SYSTEM (Draw, Nest, Cut)
Common Cutting Feature in v5.10



Common Cutting of Paired Parts

Common cutting has obvious benefits such as reduced piercing, less cut distance and tighter nesting however many of our customers seem to have very simple needs in this area. Common Cut Pairs is ideal. Whether a job requires 10 parts or a 100 parts, the common cutting saving derived from cutting two geometry in a single pass are estimated to be between 10 and 25%, depending on the type of part, distance etc.

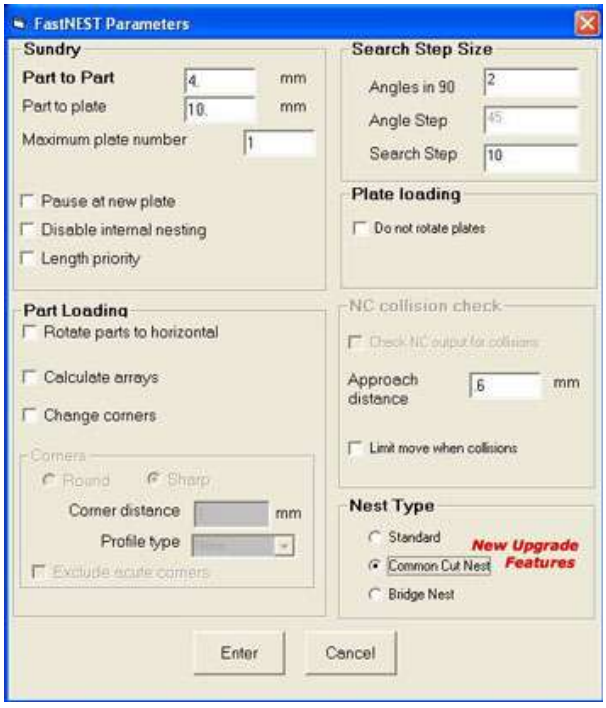
FastCAM Common Cutting for Paired Parts is only compatible with FastCAM **(Professional Edition)** v5.9. Users of earlier versions will have to upgrade first.

Common cut pairs can reduce the cutting and halve the piercing. It is used most often in shipbuilding as it is common to encounter left and right hand pairs.

Other common cutting traditionally uses a single straight side for common cuts. This can save some cutting but not piercing. As piercing can be up to 80% of cutting time and much slower than cutting itself and even more expensive in consumables and plate, what is wanted is common cutting which does not involve additional piercing. The one of greatest interest has been where the part separation in nesting is exactly one cut width. As with all cutting, the concerns are;

- Part movement
- Part marking during cutting
- Part dimensional accuracy
- Cutting time
- Piercing time
- Scrap.

These can work against each other.



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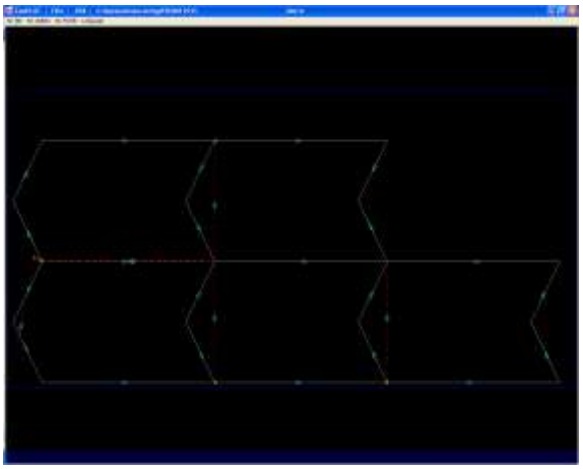

NEW FastCAM v5.10
with Common Cutting & Bridging

Common Cut Nest

In FastCAM® Professional v5.10, **we have introduced the ability to completely common cut nest.** Compared with traditional nesting of separate parts each with their own external entry and exit, FastCAM® Common Cut Nest gives you the ability to set the part spacing to exactly the cut width before nesting.

FastCAM® v5.10 achieves 'zero gap' common cutting by cutting entire nests using a start on (part) edge approach. In many nests this will usually eliminate piercing time and halve cutting time. Intelligent strong/weak analysis logic is built into the software to minimize part movement however there is the potential for slightly damaged parts so part quality is a consideration. There is also the potential of damage to the part if an edge start command is not present in the NC control. However it offers the possibility of many common cuts in a nest of largely rectilinear parts where quality is not the main concern. It is dramatically faster with far less piercing. For rectilinear parts such as nests of rectangles, the saving in piercing can be 5x. The saving in cutting can be 2x, yielding gains of 10x in total processing speed!

Like any new technology, there are advantages and disadvantages depending on the application. The NC programmer can quickly weigh up the pro's and con's on a job by job basis. Certainly if you're cutting barbeque plates or similar then the efficiencies using the new Common Cut Nest feature can be remarkable.

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FastCAM® PROFESSIONAL SYSTEM (Draw, Nest, Cut)
Multi Pass Cutting Feature

We now have "Multi Pass" cutting. This is varying multi torch cutting as opposed to a fixed number of torches in a single pass at a fixed spacing.

While our traditional multiple strip cutting is fine and unchanged, there are occasional economies from multi torch cutting on non structured nests. These are nests where you get maximum plate efficiency by nesting for a single torch but use a multiple torch machine to speed everything where and if this is possible. To do so, you have a trade off in setup time against speed of cutting and piercing. This is more valuable as cutting speed slows, as with oxy on heavy plate. Traditionally the oxy machines are multi torch for use on heavy plate.

Operationally you nest as for single torch and then ask FastNEST® to see if there are any opportunities to use multiple passes.

The down side is that the spacing of the torches is generally not automatic and you have to get the operator to set up the right number of torches at the right spacing between each pass.

It is also worth noting that this works fine on odd shape remnant plate and does not affect plate trim.

We have found that this feature is attractive to some of our customers who do get a saving by multiple simultaneous pierces!