

Rapid Part™ Technology

Frequently asked questions



Q. How do I know if my cutting table already has Rapid Part technology?

- A. If Rapid Part technology is enabled, cut-to-cut cycle time improvements will be apparent through some of the examples, below.*
- The cutting head avoids potential tip-up collision hazards by not passing over previously cut parts
 - The torch performs partial retracts
 - The torch moves rapidly downwards to the plate
 - Gas pre-flow occurs during initial height sensing (IHS)
 - The torch periodically skips IHS on some of the pierces
 - Pierces are initiated immediately as IHS is completed

Q. Will Rapid Part technology work on existing cutting tables?

- A. Rapid Part technology will improve cut-to-cut cycle times on existing cutting tables in almost all instances. The extent of improvements will depend on the system components used for your configuration.*

Q. Will all jobs cut on a cutting table that is Rapid Part technology enabled provide the same productivity increase?

- A. Cut-to-cut cycle time improvement will be apparent on all jobs, with the most significant productivity improvements achieved on nests using thin plate with a high part or pierce count.

Q. If my cutting table is currently True Hole™ technology enabled is it also Rapid Part technology enabled?

- A. If your cutting table uses ProNest® nesting software with the Collision Avoidance module enabled, EDGE® Pro or MicroEDGE Pro CNC, ArcGlide® or Sensor™ THC, and an HPR®XD plasma system, then Rapid Part technology is fully enabled.

Q. What do I need in order to operate Rapid Part technology on my cutting table?

- A. To achieve the maximum productivity benefit from Rapid Part technology, use of the following Hypertherm products is required.
- ProNest nesting software with the Collision Avoidance module enabled
 - EDGE Pro or MicroEDGE Pro CNC
 - ArcGlide or Sensor THC
 - HPRXD plasma system

However, use of individual system components will deliver partial Rapid Part technology benefits as discussed in the Rapid Part technology white paper. As a minimum, to qualify as a Rapid Part enabled system, the cutting table should incorporate the ArcGlide or Sensor THC, since it accounts for an estimated 60% of potential cut-to-cut cycle time reduction.

Q. How much does Rapid Part technology cost?

- A. The investment required to purchase a new cutting table that is Rapid Part technology enabled, or to retrofit an existing cutting table, varies based on a number of factors.*

Q. Do I need to use an auto gas console with my HPRXD in order to achieve Rapid Part technology?

- A. No, an auto gas console is not required to achieve Rapid Part technology.

Q. What role does ProNest play in Rapid Part technology's cut-to-cut cycle time improvement?

- A. ProNest and its Collision Avoidance module performs three primary functions. First, cuts are sequenced to

minimize movement between pierces. Second, lead in and lead out locations are positioned to make sure that tip-up collision hazards are avoided, where possible. Third, when it is determined to be safe to do so, the software instructs the torch head to remain down between cuts to minimize retract and IHS time.

Q. My cutting table does not use ProNest nesting software or the EDGE Pro/Micro EDGE Pro CNC. What benefits do I get if I only use the ArcGlide or Sensor THC?

- A. There are still some excellent benefits achieved with use of only the ArcGlide or Sensor THC.
- A 60% reduction in cut-cut cycle time versus prior Hypertherm THC technology (Command THC). This is accomplished through:
 - Automatic crossover height calibration for faster IHS time
 - Rapid z-axis motion between pierces
 - Automatic pre-flow during IHS
 - Automatic retract height settings to reduce unnecessary motion
 - Robust mechanics
 - Minimal operator input, since only pierce time, pierce height and cut height are required to be entered through the machine's operator interface.

Q. What happens when a thicker plate is loaded on a cutting table that is Rapid Part technology enabled? How does the THC make sure the torch avoids crashing into the plate when various material thicknesses are used?

- A. The auto crossover height calibration automatically resets if the THC has not been cutting for 30 seconds or more, or if the torch has been manually moved in the retracted or lowered position. If the system thinks that there might be a risk of collision, it will approach the plate slowly on the first pierce.

Q. How am I able to consistently hold the correct height when IHS is not performed?

- A. IHS has been used as the way to ensure the correct pierce height and cut height is established and sustained throughout a cutting job. With Rapid Part technology, this is also true, however each time the arc is established and stabilized arc voltage sampling takes place. After a good set of samples is established and numerous consistent IHS values are obtained, encoder position can be sustained by using the sampled values to adjust arc voltage to hold encoder position. At this point, an IHS is no longer required until conditions indicate taking an IHS is warranted. At that point IHS resumes until the condition driving it is eliminated. Using this combination of methods, Rapid Part technology ensures appropriate cut height throughout the life of the consumables, yet substantially improves production output due to elimination of unnecessary IHS cycles.

Q. How does the part program allow for minimal retract between pierces when Rapid Part technology is enabled?

- A. The machine code instruction "M08 RT" or "M10 RT" is used at the end of a cut or mark process. This instruction keeps the torch head down between cuts/marks. These specific machine code instructions are included in the part program automatically by ProNest and its Collision Avoidance module.

*Hypertherm suggests you speak with your table manufacturer to confirm the capabilities of your machine and discuss a solution that is right for you