



True Bevel™ technology

Frequently asked questions

What is True Bevel technology?

As part of Hypertherm's Built for Business Integrated Cutting Solutions, True Bevel technology for HPRXD® plasma systems is a new performance application for mild steel. By delivering factory tested and scientifically adapted process settings, True Bevel technology takes the guesswork out of plasma bevel cutting.

Isn't plasma bevel cutting just a niche market?

While it is possible to characterize plasma bevel cutting today as a niche market, the potential growth is substantial. Based on customer surveys, we have learned that over 90% of all end users have 20% or more mild steel parts that ultimately have at least one beveled edge. Only about 10% of these bevels are achieved using an automated plasma bevel head.

What have the challenges been with plasma bevel cutting?

There have primarily been 3 big issues with bevel cutting cited by end users. They are:

- **Cost:** The perception is that the bevel cutting mechanics for plasma cutting have been a substantial additional cost for an X-Y table. This is often difficult to justify versus other processes.
- **Process setup difficulty:** The time from the initial receipt of a CAD file to the output of the first good part has been highly variable, especially when compared to I-cutting. Trial and error has been a big part of new part/nest introduction on the production floor, requiring substantial scrap during test cutting as well as significant collaboration between the CAM programmer and the machine operator.
- **Consistent performance over time:** The normal properties of plasma physics that apply to I-cutting are magnified for plasma bevel cutting. For example, maintaining proper standoff height during cutting is not only an edge cut quality concern for plasma bevel cutting, but it is also a dimensional tolerance concern.



Does True Bevel technology eliminate all of the issues mentioned in a previous question?

True Bevel technology makes setting up a new angle or process significantly easier, with less trial and error. Beyond that, ProNest® delivers embedded techniques like nesting optimization using process compensation and corner loop macros that optimize corner loops based on plate thickness and geometry of the part. Phoenix™ delivers sampled arc voltage using the Sensor™ THC electronics, which both optimizes consumable life and part dimensions throughout the life of the consumables. However, it is important to note that setup still may be required to meet part accuracy requirements.

Is plasma cutting ready for bevel cutting with all those issues?

Yes. Advancements in process technology and product stability have set the stage for this to become the next big thing in plasma cutting technology. True Bevel technology delivers many of these advancements that reduce the most significant pain points for the end user.

Can I get True Bevel technology even if not running ProNest or a Hypertherm CNC?

Yes, the parameters in the True Bevel spreadsheets used in ProNest will be provided to any OEM who sells HPRXD cutting equipment for bevel cutting. Implementation by the OEM will vary greatly, but the process data will be made available for any HPRXD table manufacturer.

Can I still get True Hole® and Rapid Part™ technology on bevel cut parts?

Yes. The Integrated Plasma Cutting Solutions are enabled whenever all the components to deliver them are present and the part / nest geometry meets the requirements to use them. For example, interior holes can be cut with True Hole process on the same part as beveled edges are cut.

I-cut cut charts come in mild steel, stainless, and aluminum. Why are the bevel cut charts for mild steel only?

In our market research we learned that the vast majority of bevel parts are mild steel. Given the volume of testing required, we therefore elected to start by publishing mild steel charts and continue to evaluate the need for other materials as customers adopted these.

Does True Bevel technology provide all angles and thicknesses?

True Bevel technology offers very broad coverage for the processes customers have highlighted as the highest volume of bevel features for their product. In addition, there exists the possibility to interpolate within the range of the processes documented using the spreadsheets.

Does True Bevel cover all types of bevel cuts?

The processes provided cover V, A and Top-Y beveled edges. They do not cover bottom-Y, X or K-cut parts. These were a very low percentage of applications in our surveys, and we will continue to monitor for market need for us to develop bevel parameters for these additional geometries.

What is needed to take full advantage of True Bevel technology?

Above all, it is critical to use reliable and repeatable bevel head and table mechanics. Any inaccuracies or inconsistencies in motion will be amplified in bevel cutting applications. Hypertherm (through the Product Application Engineering team) has special evaluation tools to help you make sure that your bevel mechanics are accurate and repeatable and verify that your transformation equations are working properly.

For additional information please see the Hypertherm website or contact your local Hypertherm sales agent.

Does True Bevel technology eliminate the need to implement transformation equations to the CNC?

No, transformation equations are required to relate the mechanics to the motion algorithms in the CNC software, Phoenix. What these charts do after that relationship is established is to relate the bevel cutting process variables to the mechanics for the most common types of bevel mechanics found in the industry.

What systems are supported by True Bevel technology?

The bevel cutting parameters in True Bevel technology were developed specifically for the HPRXD plasma system.



Contact Hypertherm to locate a distributor near you.

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One of Hypertherm's long-standing core values is a focus on minimizing our impact on the environment. Doing so is critical to our, and our customers' success. We are always striving to become better environmental stewards; it is a process we care deeply about.

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