

# Hypertherm Powermax SYNC®: legendary air plasma technology

Shaun Geyer, product manager for Hypertherm plasma cutters at Renttech SA, talks about Powermax SYNC® plasma technology and the SmartSYNC® torch: modern innovations making Hypertherm a world market leader.

**R**enttech SA, which is now an official Hypertherm Premier Partner, offers the full range of Hypertherm products with warranties, along with technical support from the company's Hypertherm product support team. This includes Hypertherm's latest innovations, the Powermax SYNC® range of plasma cutting systems along with its SmartSYNC® torch. Together, these are able to dramatically simplify cutting and gouging operations of materials of up to 20 mm, and non-precision severance cutting of up to 32 mm.

"While oxyfuel cutting systems can be used for ferrous metals and are typically reserved for use on thicknesses of 50 mm (2-inches) or more, the plasma cutting process accommodates both ferrous and non-ferrous conductive materials, including rusted, painted, or grated metal plate from very thin up to 50 mm, depending on the plasma cutting power," explains Renttech SA's Product Manager for Hypertherm, Shaun Geyer.



Above: Instead of five consumable parts, the SmartSYNC® torch that comes with Powermax SYNC® systems needs only one single colour coded cartridge-type consumable.

Below: The Powermax SYNC family is an entirely new air plasma platform.



"At a minimum," he says, "plasma is twice as fast as oxyfuel when cutting metals of up to 25 mm in thickness, and up to 12 times faster on thin materials. Cutting productivity is also affected by piercing delays, and while it can take 30 seconds to pierce a 16 mm steel plate with oxyfuel, a plasma cutter can do the same task in less than two seconds," he tells *African Fusion*.

For high definition plasma cutting, mechanised CNC Hypertherm systems, such as the gas-assisted HPR and XPR systems, are used to provide consistent, clean cuts at metal service centres and for large fabricators across the globe. For handheld plasma applications, though, compressed air is generally used for ease of use and practicality in workshops. This minimises training, improves results and increases profitability.

"When comparing oxyfuel to plasma, air plasma using compressed air is far less complicated. There are no gases to mix or regulate, and no operator settings to be adjusted to maintain the flame chemistry and heat. Furthermore, many handheld plasma torches allow the operator to drag the torch along the surface of the plate material, so no standoff is needed to hold a steady distance between the oxyfuel tip and the surface being cut," Geyer adds.

"Overall," he continues, "the plasma cutting process produces more precise and cleaner cuts than oxyfuel with better angularity, a thinner kerf, a



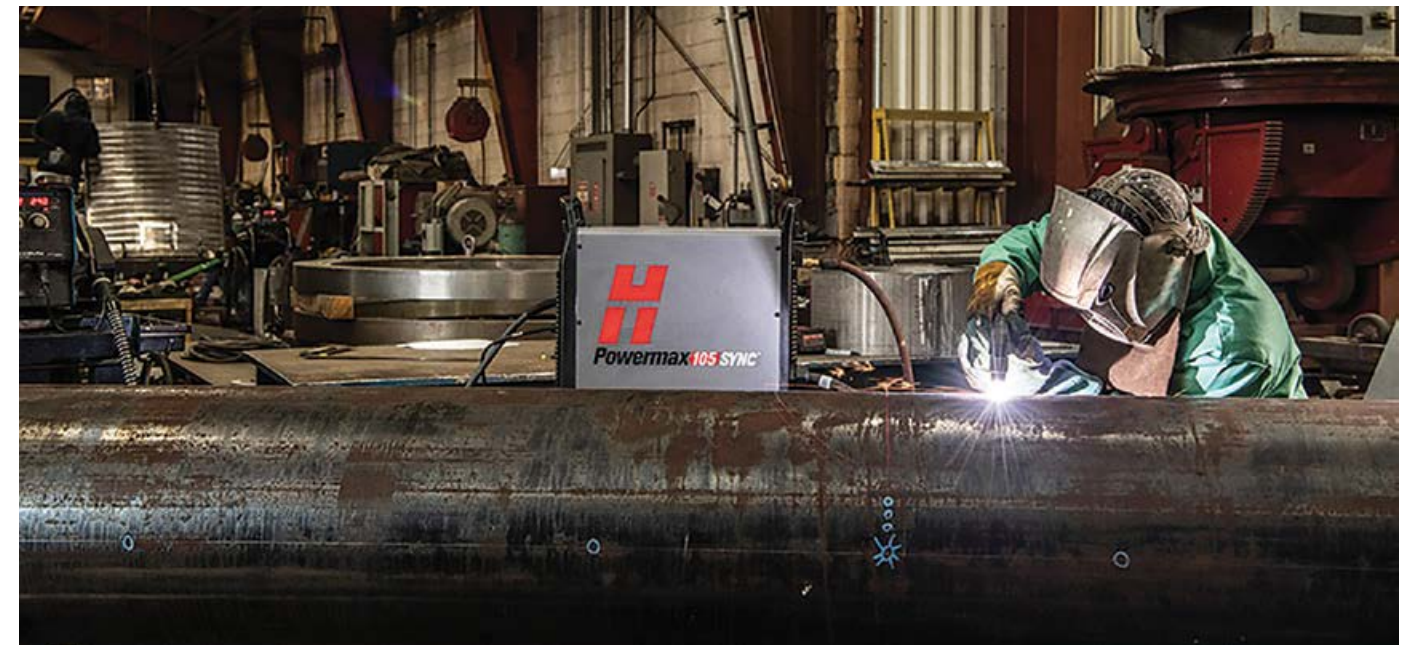
The SmartSYNC® torch automatically adjusts the amperage and chooses the correct cutting or gouging mode.

smaller heat-affected zone, and zero to no dross. Poor cut quality on steel plates has a ripple effect on the production line, leading to unnecessary rework and delays in fabrication delivery. Many of these pitfalls can be avoided by switching from oxyfuel to the plasma cutting process," he advises.

## The world's first Powermax SYNC® design

Shaun Geyer says that the Hypertherm Powermax SYNC® design is a world first. Powermax SYNC is an entirely new air plasma platform from Hypertherm. There are three systems in all: the Powermax65 SYNC®, the Powermax85 SYNC®, and the Powermax105 SYNC®, all of which have built-in intelligence and a single-piece torch cartridge consumable.

"Instead of five consumable parts, the SmartSYNC® torch that comes with Powermax SYNC® systems needs only a single colour coded cartridge-type consumable. There is no longer need for concern about finding and fitting the correct combination of consumable parts. All that is required is a single colour-coded cartridge, which



Above: The plasma cutting process produces more precise and cleaner cuts than oxyfuel with better angularity, a thinner kerf, a smaller heat-affected zone, and zero to no dross.

Right: The Powermax65 SYNC® system and its associated torch, which has built-in intelligence and a single-piece cartridge consumable.

is screwed into the plasma cutting torch before starting to cut," he points out.

The SmartSYNC® torch automatically adjusts the amperage and chooses the correct cutting or gouging mode. Through its embedded RFID-enabled sensor, the torch will also inform users when the consumable cartridge is worn out and needs replacement. "You no longer need to check the wear life by unscrewing and removing the component stack to look at the electrode – or worse, wait until the torch fails to cut properly and causes damage to the workpiece," he suggests.

## HPR-XD now with SmartSYNC torch cartridge

The new torch cartridge idea has also been introduced for mechanised Hypertherm cutting systems, where a cartridge has been designed for retrofitting in-service HPR-XD systems. "Apart from having to upgrade the torch on these systems, no changes are required to the plasma power unit or the CNC system settings. Operators can replace both the torch and the cartridge in seconds, without the need for tools," says Geyer.

"The new cartridge replaces the traditional 5-piece consumable stack with a perfectly

aligned part that lasts longer while delivering extended high-definition cut quality. It makes consumable management and assembly much easier and eliminates errors caused by incorrect handling or installation. The HPR cartridge and torch are available for use in South Africa and they come in three amperages: 80 A, 130 A and 260 A.

"The PowermaxSYNC range of air plasma cutters is Hypertherm's smartest system ever. They can automatically set the amperage and operating mode and the cartridge-based SmartSYNC® torch alerts you when it is time to change out your cartridge consumable. This makes plasma cutting far easier and better," he says.

"The torches are also engineered for rugged, industrial environments with SpringStart™ technology to ensure consistent starting and a more reliable torch. They are legendary tools," Shaun Geyer concludes.

[renttechsa.co.za/plasma](http://renttechsa.co.za/plasma)