



TRUE series plasma

African Fusion talks to ESAB South Africa's country manager, Kim Brightwell (left), about the release of its new hand-held range of plasma cutting equipment, the Cutmaster True series, a simple, robust range of plasma cutters ideally suited to small, medium and micro enterprises (SMMEs).

The ESAB Cutmaster TRUE™ series has been designed with the idea that recommended cut capacity should also be the true cut capacity. "This range of hand held plasma cutting machines eliminates the need for customers to 'buy up', that is, buying a machine larger than the one actually needed. With the Cutmaster TRUE series, a machine that is recommended for a 25 mm cut capacity will cut 25 mm material all day long," Brightwell begins.

There are five machines in the range: the 40 A Cutmaster 40 for light industrial use; 60 and 80 A machines for general industry and the 100 and 120 A units for heavy industrial fabrication.

The smallest and most portable of the series, the ESAB Cutmaster 40 is an affordable, high quality 110/230 V plasma cutting system designed for production quality cutting of plate of up to 12 mm – and, "while it can also punch through 22 mm plate, it can cut at its 12 mm recommended capacity at a 100% duty cycle," Brightwell says.

The unit comes complete with a carry bag; a power supply with work leads and ground

clamp; a 6.1 m SL60 quick disconnect 1Torch torch for easy maintenance or machine torch conversion; welding gloves; shade five glasses; an operating manual and a training DVD.

Weighing less than 12 kg, this unit is designed to maximise portability. Key features include:

- A True-Cut™ thickness of 12 mm, a maximum cut capacity of 22 mm and production piecing capacity of up to 8.0 mm.
- Automatic input voltage selection between 110 and 230 V.
- TD Surelok technology, a system that locks the electrode into its exact position before every start for better quality cuts and longer consumable life.
- Microprocessor controlled front panel LEDs ensure error-free use from setup to clean up, giving operators confidence to focus on the cutting itself.

"These small units are ideal for auto-body restoration and repair; plumbing

and HVAC system installation; light construction and general maintenance, repair and ornamental work," Brightwell tells *African Fusion*.

At the opposite end of the range is the Cutmaster 120, which weighs 28 kg and can provide 120 A of cutting power for a 40 mm recommended cut, a 55 mm maximum cut and a 25 mm piecing depth. As with all other machines in the range, this compact unit comes standard with the quick disconnect 1Torch®, which is "well-known for its comfort and reliability in the industry". The Cutmaster 120 package includes: the power source; an SL100 1Torch; a spares/consumables kit; an air filter/regulator; the work cable and clamp and a power cable.

In addition to the automatic input voltage selection and TD Surelok technology incorporated into all the machines in the range, the 120 features: auto-restrike for cutting mesh or expanded metal at maximum productivity; and a true-Guard™ roll bar for ultimate protection of the machine and its controls.

Suitable applications include:

TRUE GUARD™ roll bar
Provides easy transportation, protects the front and rear of the power supply for unmatched durability.

User Controls
All user controls are conveniently located on the front panel.

COLOR CODED LED'S
Indicate pressure status and setup errors.

Mobility
Lightweight design improves portability (Reduced nearly 50%).

Storage
Convenient storage compartment for spares and consumable parts.

60 Amp Tip
The industry's only 60 Amp Drag Tip.

Flexibility
Multiple torch capability (Pierc, Mechanical and Automators).

Auto Pilot Restart
This feature instantly represses the pilot arc while cutting expanded metals.

Quick Connect
ATC™ (Advanced Torch-Connector) quick torch connect/disconnect with no tools required.

A summary of the features of the ESAB Cutmaster True series, the company's new hand-held range of plasma cutting equipment.



cutting, ideal for SMMEs

heavy fabrication, ship building, construction, manufacturing, structural steel, rental fleets, pipe and pipelines, mining, demolition and scrapping.

Sitting between the 40 and the 120 A Cutmaster machines are 60, 80 and 100 A versions, with 20, 25 and 35 mm recommended cut thicknesses respectively. "All of the machines use the same torch consumables and the only difference between the two 1Torch variations used – the SL60 and the SL100 – is the size of the power lead in the hosepack," Brightwell says.

Responding to the question about the advantages of plasma cutting compared to oxyfuel cutting systems, he says that the greatest advantage of plasma is its ability to cut stainless steel and non-ferrous metals such as aluminium and copper. "Oxy-fuel systems are limited to cutting carbon steels

and are best suited to thicker sections. Modern plasma cutting systems such as the Cutmaster can produce high precision cuts with minimal slag, often with a narrower kerf than can be produced by an oxy-fuel torch," he responds.

On thinner sections such as those targeted by the Cutmaster range, the plasma cutting speeds are faster and distortion can be almost entirely overcome. "The process is also simpler and safer to use than oxy-fuel systems, because compressed air is used instead of fuel gases, which are explosive and require special handling," he adds.

Compressed air at 5.2 bar is recommended for the Cutmasters, with flow rates varying between 190 and 212 l/m for the 40 A and the 120 A machines, respectively. "Piped compressed air is almost always available on workshop floors and, via compressors, at construction sites," Brightwell suggests.

An additional advantage of plasma systems is their gouging ability. "Plasma gouging can be done with a lot less fume and noise than that offered by carbon arc gouging. The clean nature of the process, which melts metal rather than burning it, also makes it ideal for weld repair use, where a defect might need to be gouged out before inserting a repair weld," he tells *African Fusion*.



Above: A mechanised plasma torch and a Crossbow CNC cutting system convert a cost-effective Cutmaster plasma cutter into a simple, compact, portable and very economical CNC cutting system. Left: An HMI screen and CNC control panel enable simple profiles to be programmed directly into the system and a library of basic shapes is available to further simplify this process.

In the hands of a good operator, Brightwell says that clean, good quality cuts can be achieved with ease. In addition, however, a number of guides are available, for circle, radius-roller and straight-line cutting. Standoff cutting guides are also available and the "ESAB Cutmaster system offers the only 60 A drag cutting tip on the market today. Drag tips and standoff guides enable the operator to maintain the ideal standoff distance and avoid any possibility of the tip touching the workpiece," he explains.

Mechanised plasma cutting

Cutmaster machines are also ideal for use with ESAB's low-cost Crossbow XY manipulator.

"By using a Cutmaster plasma machine with an ESAB Crossbow manipulator, these hand-held systems are instantly converted into simple CNC profiling systems. The Crossbow runs on tracks in the x-axis and has a sidetracking bar for y-axis travel. We have installed systems in South Africa with travel lengths of up to 15 m, and the side bar can accommodate 1.5 m widths," he says.

An HMI screen and CNC control panel enable simple profiles to be programmed directly into the system and a library of basic shapes is available to further simplify this process. "A USB

port can be used for loading programs and the system also includes a facility for quickly setting up pattern nesting to minimise waste. It is also able to automatically compensate for cutting the kerf – for plasma and oxy-fuel cutting systems.

"A mechanised plasma torch and a Crossbow CNC cutting system convert a cost-effective Cutmaster plasma cutter into a simple, compact, portable and very economical CNC cutting system. The Crossbow was only launched earlier this year and we have already sold several systems into the automotive sector of South Africa," Brightwell reveals.

"Both these solutions are particularly well suited to the SMME sectors where competition is fierce and margins are tight. The Cutmaster hand-held plasma cutters are highly flexible with respect to the materials that can be cut and their portability for workshop or outdoor work.

"Everyone has to fight to reduce costs and improve their quality and service offering in the current economy. ESAB's Cutmasters come with a three-year unlimited power supply warranty and, with or without a Crossbow, are ideal for the flexible, fast and cost-effective cutting of any metal," Brightwell concludes. ■