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RANCH DRESSING

WHETHER RAISING POULTRY OR CATTLE, OR GROWING WHEAT, SOYBEANS, CORN OR SUGARCANE, ONE THING FARMERS AND RANCHERS HAVE IN COMMON IS THEIR DRIVE FOR GREATER CUTTING AND GOUGING PRODUCTIVITY.

ANOTHER IS THEIR USE OF PORTABLE PLASMA CUTTING TOOLS TO SAVE TIME AND MONEY IN METAL FABRICATION AND REPAIR JOBS.

By Reese Madden, Hypertherm Inc.

If there is one truth in farming and ranching, it's that the business is constantly changing. That's as true today as ever, as prices for agricultural products have swung wildly, caught up in the tumult of the global economy. But even when prices are high, the threat of the unexpected always looms. Bad weather, flooding, rising costs and more mean farmers and ranchers can never take good times for granted.

Amid this uncertainty, one thing remains constant: farmers and ranchers are always looking for ways to increase their productivity. Whether it means getting more yield from an acre of land, feeding more stock without hiring more hands or simply getting more done before nightfall, productivity matters.

To deliver these advances, companies that supply farmers are investing heavily in research and development. Like John Deere, Case New Holland, Massey Ferguson and others, plasma system manufacturers are also continuing to invest in developing new technologies to make farmers more productive in quickly and easily cutting and gouging metal.

Whether they know it or not, most farmers already use products that were manufactured with plasma. Chances are good that their tractors, combines, storage tanks and other fabricated metal products, from fences and spreaders to balers and plows, were manufactured with the help of plasma. Farmers themselves can also reap productivity benefits by using plasma tools. Some of today's advanced plasma tools are highly portable, very powerful and exceptionally versatile machines – characteristics which make them perfect on the farm. These attributes also give today's plasma systems significant advantages over oxy-acetylene cutting and older plasma models.

One of the most appealing characteristics of today's plasma is its versatility. Plasma's ability to cut different metal types, including mild steel, stainless steel, aluminum and more, is one



PLASMA CUTTING DELIVERS PRODUCTIVITY BENEFITS TO FARMERS BECAUSE OF IT'S VERSATILITY, SPEED, AND EASE OF USE.

HOW PLASMA WORKS

Plasma is created by applying electrical energy to a gas, such as air or nitrogen, which increases its temperature significantly. Plasma's intense heat melts metal and its high pressure blows the molten metal away, leaving an edge with good quality that minimizes the need for secondary operations. Some plasma systems are also effective for gouging metal. Certain models are highly portable and require only power and compressed air to operate. They are easy to use, and even first-time operators can achieve good results.

of the technology's key advantages. Also important is the fact that plasma can cut through dirty, painted and even rusted metals without any pre-work. These capabilities provide a significant advantage over oxyfuel, which is ineffective on materials other than mild steel and performs poorly on dirty, painted or oxidized materials. Plasma also cuts metal grate, a common material used around the farm, far faster and easier



than with other cutting tools.

Plasma's ability to transition easily from the shop to the field also provides a compelling advantage for farmers. Some plasma systems may be run on power as low as 110 V or 230 V, which makes them a good option for use in the shop, barn or garage. Today's lighter, more portable systems may be easily transported from one location to another, and may easily be carried up a ladder or stairwell. But since not all cutting needs are close to home, today's best plasma systems may also be run on generators without any degradation in performance.

Plasma's ability to gouge metals is also useful around the farm; it is an effective substitute for carbon arc and oxy-fuel gouging for certain applications. Plasma gouging is a good solution for a variety of equipment repair and maintenance jobs, where existing welds or rivet heads need to be removed to prepare for replacement part installation. Plasma can also be used for back-gouging applications for weld preparation – great for the many custom fabrication jobs that a farm requires.

A subset of farmers may also appreciate the ability to cut metal using automated tools. Again, today's plasma delivers. Whether mounted on a small X-Y cutting table for cutting parts or ornamental designs, or used in conjunction with a pipe cutting tool, the ability to perform a wide variety of jobs makes versatility valuable.

Inverter-based power supplies have dramatically shrunk the size of today's more advanced plasma systems. In recent years, size and



A PLASMA CUTTER IS GOOD FOR SILO REPAIR, INCLUDING GLASS-LINED SILO PANELS.

weight reductions of 30-50 percent have not been uncommon from one generation of plasma model to the next. These advances have made plasma much more portable, even while performance continues to improve. Other improvements that further improve portability, such as single-handle designs and shoulder straps for easy transport, are possible with today's smaller, lighter systems.

Today's leading plasma systems are able to deliver a lot of power in their small packages. The best systems deliver superior quality cuts at fast speeds with high duty cycles on their advertised thickness. Many farmers find that a plasma system designed to cut metals up to ½ in (12 mm) or ¾ in (19 mm) meets their needs.

For those unfamiliar with plasma and especially for oxyfuel users, the fact that plasma provides the power to cut and pierce with no preheating of the metal is especially noteworthy. Gauging a system's power is not as easy as simply looking at the product's output amperage. Some brands of plasma systems actually deliver *higher* performance with less amperage than systems from other manufacturers. While more amperage may look attractive in a product brochure, what really matters is what level of performance – including cut

PLASMA BEING USED TO BACK-GOUGE FOR WELD PREPARATION IN A CUSTOM FABRICATION JOB ON A FARM.



capacity, duty cycle, and cut quality – the system delivers.

While many plasma tools deliver on one or two of the benefits described above, only a handful deliver the portability, power and versatility that makes for an ideal productivity tool. For example, a Powermax45 combines all three in a way that may make it the best choice for many farmers. At only 37 lb (16 kg), it is highly portable, yet it still delivers fast, high-quality cuts on metals up to 3/4 in (19 mm) thick, and can sever even thicker.

It also includes a proprietary Boost Conditioner™ circuit that improves performance on low-line or fluctuating input power, including on motor generators. It's a highly versatile tool as well, able to perform cutting and gouging applications on multiple metal types, in various locations, using either a handheld or mechanized cutting torch. Plus it runs on compressed air, which is particularly attractive in light of rising gas costs.

ONE SOURCE, MANY APPLICATIONS

Plasma may be used for cutting off corroded, worn or damaged metal on bailers, harvesters, spreaders and other pieces of equipment; for fabricating and repairing corrals, gates and fences; and even for gouging metal for weld preparation or weld repair. Silo repair, including of glass-lined silo panels, is a good application for a plasma cutter. While an oxyfuel flame creates a mess of glass and metal, a plasma system cuts cleanly through, with no mess and good speed.

Whether raising poultry or cattle, growing wheat or soybeans, corn or sugarcane, one thing farmers have in common is their drive for greater productivity. With the latest generation of portable, powerful, versatile plasma systems, farmers can get more of their cutting and gouging work done, in less time, at lower cost than ever before – making plasma a true productivity tool no matter what you farm.



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Any job. Any metal. In the shop or in the field.

System	Powermax190c	Powermax30	Powermax45	Powermax1000	Powermax1250	Powermax1650
Output current (amps)	12	15 – 30	20 – 45	20 – 60	25 – 80	30 – 100
Recommended	1/8" (3 mm)	1/4" (6 mm)	1/2" (12 mm)	3/4" (19 mm)	7/8" (22 mm)	1-1/4" (32 mm)
Maximum	3/16" (5 mm)	3/8" (10 mm)	3/4" (19 mm)	1" (25 mm)	1-1/8" (29 mm)	1-1/2" (38 mm)
Severance	1/4" (6 mm)	1/2" (12 mm)	1" (25 mm)	1-1/4" (32 mm)	1-1/2" (38 mm)	1-3/4" (44 mm)
Maximum mechanized piece capacity	Not applicable	Not applicable	3/8" (10 mm)	1/2" (12 mm)	5/8" (16 mm)	3/4" (19 mm)
Duty cycle	35%	30 – 50% Voltage dependent	50%	40 – 50% Voltage dependent	40 – 60% Voltage dependent	60 – 80% Voltage dependent
Weight	46 lbs (20.9 kg)	20 lbs (9 kg)	37 lbs (16.8 kg)	83 lbs (37 kg)	96 lbs (44 kg)	135 lbs (61 kg)



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