SilverPlus is a proven technology that greatly extends electrode life and reduces operating costs. Now, this remarkable innovation, in conjunction with our new shielded nozzle and shield adaptor is available on our HD3070 HyDefinition® plasma systems cutting with the 100-amp oxygen process.

HD3070® SilverPlus™ Quick Set-up

To achieve maximum SilverPlus electrode life

A fully used SilverPlus electrode will have a pit depth of .060 in. (1.5 mm). Note: This is .020" deeper than the recommended pit depth for standard parts .040" (1 mm).

Purge torch: after each parts change purge the torch for at least 30 seconds to remove residual moisture.

Adjust gas flows: Plasma gas flow rate is critical. High flow will cause rapid electrode wear and hard starting. Low flow will cause uncontrolled arcing. (See chart)

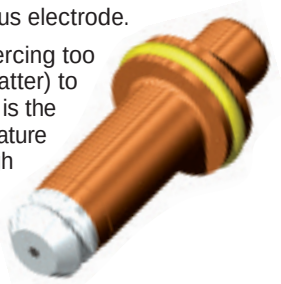
Adjust arc voltage: As the electrode wears, the torch will get closer to the plate. To compensate for this, increase arc voltage in 2-volt increments, up to 10 volts higher than the initial setting.

Avoid ramp-down errors: Ramp down errors can occur when rip cutting off the plate or when leading out to the dropped part as the arc stretches. These "blowouts" shorten electrode life by 10 or more starts per occurrence.

	Part number	Description
1.	220408	Electrode, SilverPlus
2.	020637	Swirl ring
3.	220409	Shielded nozzle
4.	020795	Inner retaining cap
5.	220508	Shield adaptor
6.	020634	Retaining cap (without IHS tab)
7.	020687	Retaining cap (with IHS tab)

To achieve maximum nozzle life

With careful use, the new shielded nozzle can last 1:1 with the SilverPlus electrode.



Pierce at correct height: Piercing too low causes molten metal (spatter) to hit the shield and nozzle. This is the most common cause of premature nozzle failure. Piercing too high can cause slow arc transfer and misfires. In most applications, 1/4" (6 mm) pierce height works.

Adjust shield flows: High shield gas flows during pre-flow protect the nozzle and shield from damage. Make sure pre-flow is adjusted according to the cut chart.

Clean the nozzle and shield: periodically clean the nozzle and shield to remove spatter. This will prevent double arcing.

Adjust arc voltage: As parts wear, adjust arc voltage up in 2-volt increments to keep the shield from dragging on the plate. Damage to the shield and nozzle occurs if the torch contacts the plate during cutting.

HD3070, mild steel, O_2 plasma/O_2 and N_2 shield, 100 amp cutting SilverPlus

Material Thickness (in)	(mm)	Test Preflow* Flowrates(%) Preflow O_2 (1)	N_2 (2)	Test Cut Flowrates (%) Shield O_2 (3)	N_2 (4)	Plasma O_2 (5)	(6)	Arc Voltage (volts)	Torch Standoff** (in)	(mm)	Travel Speed (ipm)	(m/min)	Initial Pierce Height*** (in)	(mm)	Pierce Delay (dial)	(sec)
1/8	3.2	10	100	35	90	50	–	137	.090	2.3	275	7.0	.250	6.4	0	0.00
1/4	6.4	10	100	35	90	50	–	141	.090	2.3	135	3.43	.250	6.4	0.4	0.22
3/8	9.5	10	100	35	90	50	–	145	.090	2.3	95	2.41	.250	6.4	0.7	0.27
1/2	12.7	10	100	35	90	50	–	147	.090	2.3	64	1.62	.250	6.4	1.0	0.37

O_2 and N_2 gas inlet pressures must be between 105–135 psi (7.2–9.2 bar) for all material thickness.

* Slightly increasing the test preflow O_2 and N_2 flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

** The torch standoff tolerances are ± 0.005 inch /± 0.125mm. When using a THC, the tolerances are ± 1 volt.

*** Measured from tips of shield adapter.

SilverPlus® consumables are available in a starter kit (#22800).

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5 of manual: *Maintenance, Gas System Back Pressure Checks.*

Allied Blower & Sheet Metal Customer Testimonial

"Allied Blower & Sheet Metal LTD. manufactures pollution control systems. Our equipment requires the fabrication and welding of large amounts of medium to heavy gauge sheet metal. We rely heavily on our plasma machines to streamline the process and maximize our ability to get the optimum usage from each sheet of metal.

Prior to using Hypertherm's SilverPlus electrode and new shielded nozzle, we experienced a great deal of problems with cut quality and electrode life with the aftermarket parts we had used.

Since testing Hypertherm's SilverPlus electrode and new shielded nozzle in March, our cut quality has improved significantly with a decrease in bevel angle and radius around corners. The longevity of the electrode has increased from an average of 800 pierces to an incredible 2042 pierces on one control test. This has resulted in savings of time and money.

We are very pleased with Hypertherm's product and would recommend it to others for similar applications."

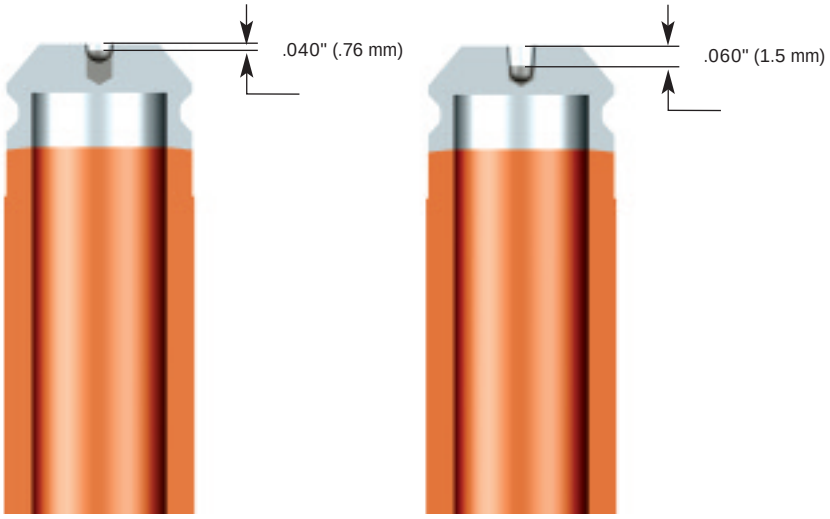
Barris Forbes
Principal, Allied Blower & Sheet Metal LTD.

Half-used electrode

The SilverPlus electrode is only half consumed. The pit in the center of the part measures .040" (.76 mm). Electrodes are often removed prematurely due to cut quality deterioration related to nozzle failure. Additional life can be achieved by replacing the nozzle and leaving the electrode in place.

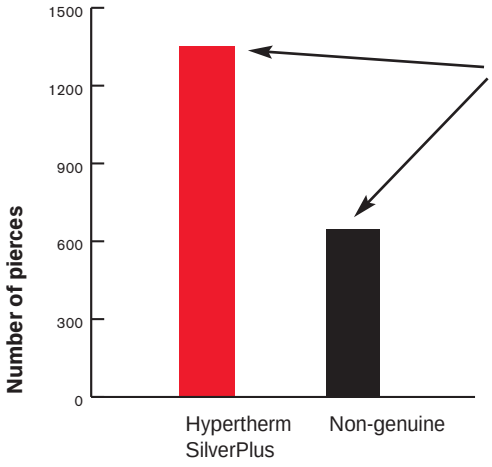
Fully-used electrode

The SilverPlus electrode has provided full use. The pit depth is .060" (1.5 mm). The operator increased the arc voltage by 10 volts from the first cuts made with this electrode to the last. This maintains a constant distance between the torch and the work-piece through the life of the electrode.



100-amp oxygen electrode life

Benchmark testing results
(20-second cuts with 20% ramp-down error)



- 109% longer life than non-geniune parts – Is the aftermarket price low enough to justify buying and changing out sets **twice** as often?

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