



*SilverLine® electrode and CoolFlow™ nozzle
for InnerLogic® ProLine2200®*



Cutting Costs

Patented SilverLine electrodes and patent-pending CoolFlow nozzles improve cut quality and double life!



SilverLine electrodes have a solid silver end that offers three distinct advantages over traditional copper or silver foil designs:

- 1) The hafnium-silver bond is stronger, allowing a deeper pit depth in the hafnium as the electrode is used.
- 2) The heat transfer properties of silver and silver oxides are superior, which improves heat dissipation during use and slows the rate of hafnium wear.
- 3) The design is more robust, minimizing the effect of ramp-down errors and hard failures.

CoolFlow nozzle technology optimizes nozzle design inside and out, to improve heat transfer and service life. Our engineers used state-of-the-art computer modeling software to analyze coolant flow to the nozzle, and heat transfer from the plasma arc. The design has several new features and benefits:

- 1) Optimized cooling groove minimizes coolant stagnation and maximizes convective cooling, to keep the nozzle and seal cool.
- 2) Setback angled seal allows the o-ring to be positioned out of the hot zone for improved sealing reliability.
- 3) Thicker nozzle walls improve conduction cooling and provides excellent cap and shield alignment.
- 4) Rear sealing o-ring prevents coolant leaks.

The CoolFlow nozzle technology lowers front o-ring seal temperature by 50% while reducing peak temperature at the nozzle orifice by as much as 50° Celsius.

The combined effect of SilverLine electrodes and CoolFlow nozzles is up to twice the process life and half the operating cost. (See graphs on reverse side)



Head to Head

SilverLine electrode and CoolFlow nozzle

New SilverLine electrodes and CoolFlow nozzles go head to head with InnerLogic (Kaliburn)



Our testing process

We used a rigorous Hypertherm laboratory test protocol to benchmark SilverLine electrodes and CoolFlow nozzles against the original equipment manufacturer (OEM). The 20-second cut test involves repeated piercing and cutting of mild steel plate with precise measurement of cut angularity at intervals during the test. 1/2-inch mild steel (13 mm) was used for benchmarking 200-amp cut quality over life; 1/4-inch (6 mm) steel was used for 100-amp testing.

Results

At 200 amps SilverLine electrodes and CoolFlow nozzles lasted on average twice the life of the OEM.

InnerLogic parts averaged 248 range 3 cuts (bevel < 2.58°), on 1/2-inch plate (13 mm), 631 range 4 cuts (angle < 5.15°), and 804 cuts to failure.

Centricut parts averaged 612 range 3 cuts, 1152 range 4 cuts, and 1959 cuts to failure.

At 100 amps SilverLine electrodes and CoolFlow nozzles lasted on average more than twice the life of the OEM.

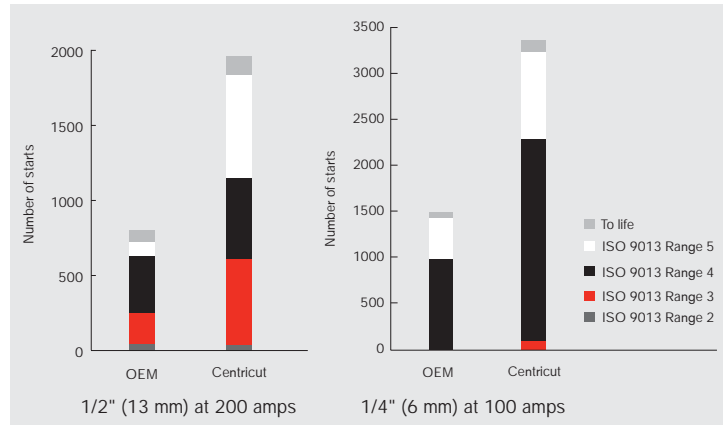
InnerLogic parts averaged 990 range 4 cuts (bevel < 8.13°) on 1/4-inch plate (6 mm), and 1,504 cuts to failure.

Centricut parts averaged 2,295 range 4 cuts, and 3,375 cuts to failure – more than twice the life of the OEM.

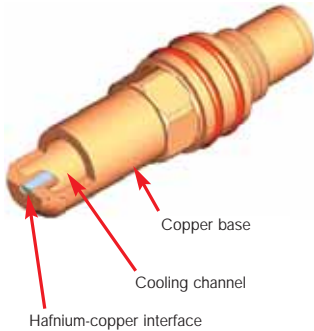
OEM vs. Centricut parts

20-seconds of mild steel cutting per start.

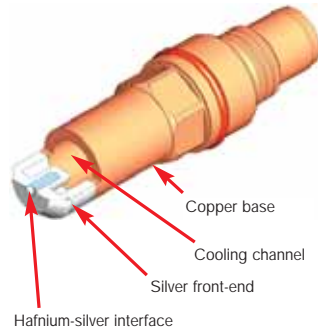
Cut quality measured according to ISO 9013.



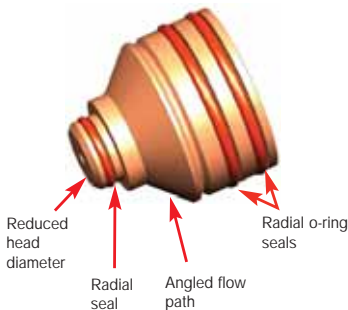
OEM electrode



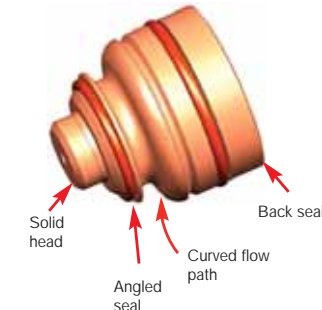
Centricut SilverLine electrode



OEM nozzle



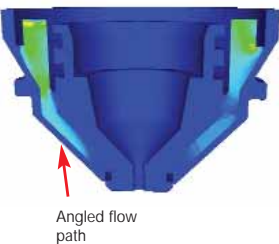
Centricut CoolFlow nozzle



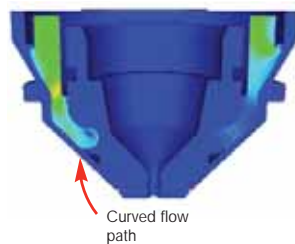
Cooling Comparison

Cooling velocity profiles

OEM nozzle



Centricut CoolFlow nozzle



CoolFlow nozzles have a curved flow path that lowers front o-ring temperature by 50% and reduces peak nozzle temperature.

The bottom line

The bottom line: under the same operating conditions, SilverLine electrodes and CoolFlow nozzles last longer than OEM parts and lower the cost of cutting.

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