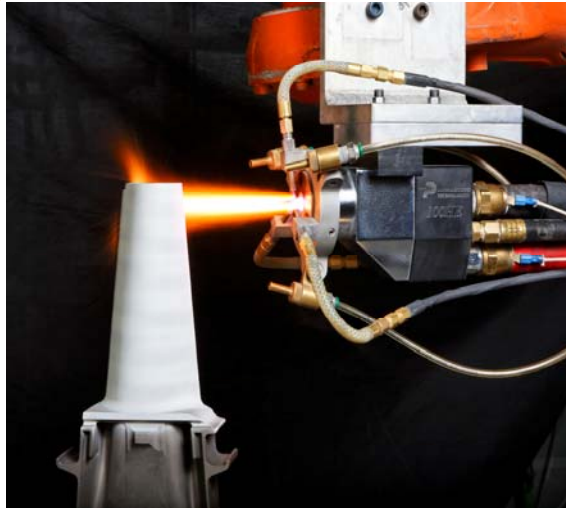


## The 100 HE Plasma Torch - A TECHNICAL SOLUTION TO THERMAL BARRIER COATINGS



The aircraft and industrial gas turbine industries constantly face new challenges as their hot section products are required to operate at higher temperatures and faster speeds for improved efficiency. To achieve this enhanced performance, the industry relies more and more on protective and clearance control coatings.

Whether the issues are high temperature (TBC ceramics, super alloys and carbides), component clearance control (abradables), or corrosion resistance the industry is solving these problems with plasma sprayed coatings designed to meet these performance challenges.

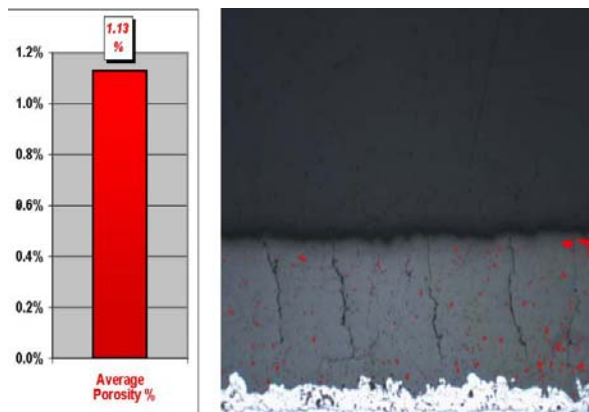


Figure 1 (50x) YZRO 93/7, 15–45 micron, Hollow Spheroidal Densified, 80% DE, 80 Grams/Minute, 104 Vertical Cracks/Inch

It is well known that Yttrium Oxide stabilized Zirconium Oxide (YZRO) is the most commonly sprayed material used for thermal barrier coatings in gas turbine components. In addition, one of the best ways to apply these thermal barrier coatings is with the air plasma spray process.

While many standard and high energy plasma torches have been used over the years for spraying TBC's the 100HE HVAP plasma torch has quickly risen to the top as a versatile and proven torch capable of producing superior YZRO coatings. No other air plasma torch can match the 100HE's wide process window, with high spray rates and very high deposit efficiencies. This large process window is clearly evident when spraying thermal barrier coatings.

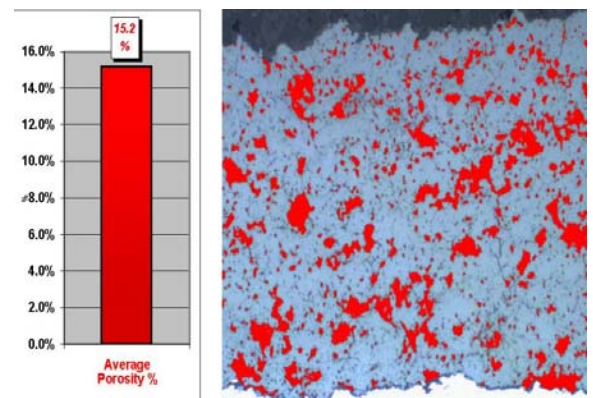


Figure 2 (100x) YZRO 93/7, 20–106 Micron, Agglomerated and Sintered, 60% DE, 300 Grams/Minute.



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# 100HE Application Advantage

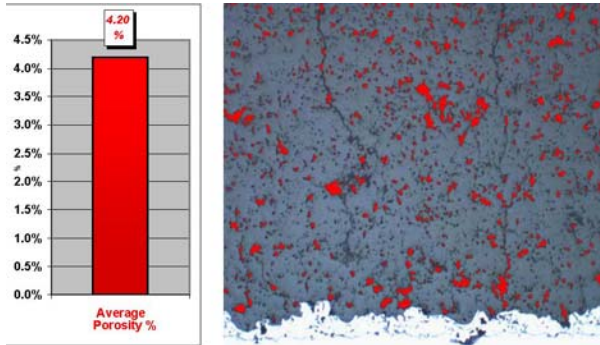


Figure 3 (50x) YZRO 93/7, 20 – 106 Micron Agglomerated and Sintered, 70% DE, 200 Grams/Minute, Vertical Cracks

The 100 HE can easily achieve coating porosity levels from 0.5% to 25%, with or without vertical cracks. Impressive when sprayed at powder feed rates up to 300 grams/minute and deposit efficiencies 3 to 10 times greater than conventional and other high KW plasma torches.

In addition to producing superior coatings, the 100HE also offers a bonus – extremely long consumable part life. The same single anode, single cathode hardware is used for nearly every coating sprayed with the 100HE. This means fewer parts needed, and with lifetimes of 200 hours per cathode and 1000 hours per anode your cost savings over other plasma torches will add up quickly.

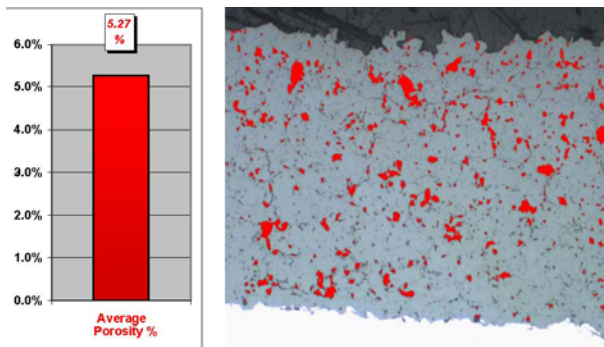


Figure 4 (100x) YZRO 93/7, 20 – 106 Micron Agglomerated and Sintered, 74% Deposit Efficiency, 220 Grams/Minute.

At *PROGRESSIVE* we are proud of the 100HE and what it has accomplished in such a short time. But we also know that other high energy plasma torches have been introduced to the market with great expectations, only to fall short of their promised results.

As it should be the bar is set high for new plasma torches entering the market. Our challenge to you is simple – select a material, contact us, and let us prove the 100HE's capability while showing you how much time, material, and money that can be saved in your particular application.

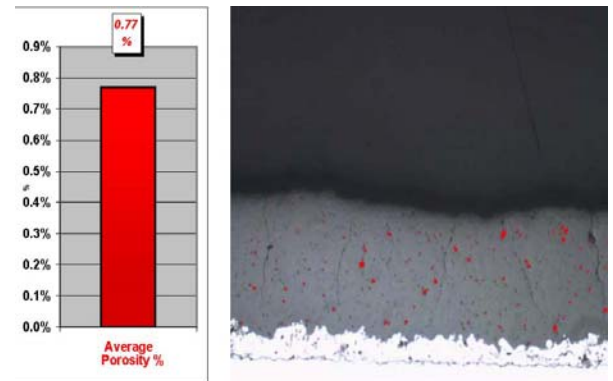


Figure 5 (50x) YZRO 93/7, 22 – 45 Micron, Fused, 76% DE, 80 Grams/Minute, 85 Vertical Cracks/Inch



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4201 Patterson SE  
Grand Rapids, MI 54321 USA  
Phone 616.957.0871  
Fax 616.957.3484