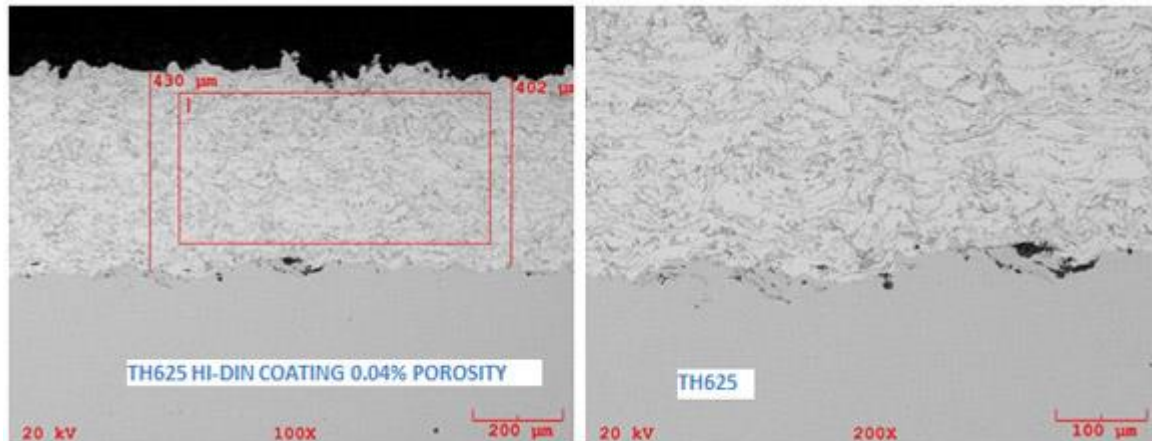


Twin Wire Arc Spray High Density Coating Process by Thermion



Thermion Inc. of Poulsbo, WA USA (thermioninc.com)

introduces a new **Twin Wire Arc Spray** process that produced high density coatings of less than 0.3% porosity for 420SS, and 0.04% porosity for the coating of Inconel 625 which is shown in the below macros. **Move over Cold Spray and HVOF**, HighDensity™ twin wire arc spray produced coatings with porosity lower than 0.5%.



SAMPLE ID	POROSITY %	OXIDE %
TH625 (Inconel 625 Wire)	0.04	3.5
TH420	0.28	6
TH420/95-5 BOND	0.23	5.7

Thermion's new twin wire arc spray process utilizes the simplicity and economics of standard twin wire arc spray principles, the above coatings were sprayed using ordinary compressed air as the atomizing gas in open air with spray distances near six inches, the coupons were rotating on a fixture and the spray gun was mounted.

Process Concept:

In this process the high electric arc energy from the two consumable wires heats gas inside a small vessel which is pressurized due to both ionization and the hot expanding gas, a jet stream exits a small port in front of which the wires are positioned and then melted, atomized, and propelled to the substrate. Controlling the arc gap is another essential part of the process, Thermion has developed means to maintain an exact arc gap to allow Nano scale splats to develop during atomization, without this arc gap control the wires will actually interfere with the atomization process and cause a mix of large and small splats and therefore increase porosity.

Possibilities:

Thermion's high density coating systems offers coatings with high density with operational costs of a few dollars per hour and operator training takes a few hours as compared to weeks and months for other coating processes. The cost of the system is a fraction of HVOF, Detonation, Plasma Arc, or Cold Spray. **All material tested to date have yielded high density coatings of less than .5% porosity including both solid and cored wires allowing a wealth of material choices.**

For more information, please contact us at +66 (0)85-193-6651 or +66 (0)81-566-9462

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Availability:

The High Density Twin Wire Arc Spray System is available directly from Thermion Inc. and provisions can be made for providing sprayed samples for your personal evaluation, or to test your wires, or coat a component for service evaluation.

Check out our new Arc Spray System, **Jet Force AVD 456HD** with our new High Density Coating System.

What If:

Thermion has concentrated on developing the HighDensity™ coating system using common air as the atomization gas, the obvious economic value need no explanation, however if a more pure, lower oxide coatings are desired, a percentage of inert gas mixtures in the atomizing jet stream will surely drive the oxide level down.

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