WHAT IS CLAIMED:

1. A coating system comprising:

a support fixture sized to be partially inserted into one or more openings of a component; and

a spray nozzle segment device comprising a housing configured to receive a slurry, the housing comprising an inlet configured to receive the slurry and plural delivery nozzles, wherein the slurry is configured to be concurrently directed onto plural surfaces of the component via the plural delivery nozzles as a coating, the spray nozzle segment device configured to be disposed radially outward of a central axis of the component and shaped to extend circumferentially about at least part of the central axis of the component,

wherein the spray nozzle segment device is configured to be operably coupled with the support fixture such that the support fixture maintains a position of the spray nozzle segment device within the component, wherein the spray nozzle segment device is configured to remain stationary in the position while the slurry is configured to be concurrently directed onto the plural surfaces of the component via the plural delivery nozzles.

2. The coating system of claim 1, wherein the housing of the spray nozzle segment device is sized to be inserted into the one or more openings of the component.

3. The coating system of claim 1, wherein the spray nozzle segment device is fluidly coupled with a reservoir disposed outside the component with one or more valves.

4. The coating system of claim 1, further comprising plural spray nozzle segment devices, each of the spray nozzle segment devices configured to be operably coupled with each other spray nozzle segment device in order to form a rail system extending circumferentially about at least part of the central axis of the component.

5. The coating system of claim 4, wherein each of the plural spray nozzle segment devices are fluidly coupled with each other nozzle segment device, wherein each of the plural spray nozzle segment devices are configured to receive the slurry.

6. The coating system of claim 4, further comprising plural support fixtures, wherein the plural support fixtures are configured to maintain a position of each of the plural spray nozzle segment devices inside the component, wherein each of the plural spray nozzle segment devices are configured to remain stationary in the position while the slurry is configured to be concurrently directed onto the plural surfaces of the component via the plural delivery nozzles.

7. The coating system of claim 4, wherein each of the plural spray nozzle segment devices are fluidly coupled with a reservoir disposed outside the component with one or more valves.

8. The coating system of claim 7, further comprising a spray controller, wherein the spray controller is configured to control operation of the one or more valves in order to control an amount of the slurry provided to each of the spray nozzle segment devices.

9. The coating system of claim 1, further comprising a spray controller configured to control one or more of an amount of the slurry provided to the spray nozzle segment device, a pressure of the slurry provided to the spray nozzle segment device, a flow rate at which the slurry is provided to the spray nozzle segment device, a temporal duration at which the slurry is provided to the spray nozzle segment device, or a time at which the slurry is provided to the spray nozzle segment device.

10. The coating system of claim 1, further comprising a spray controller configured to control one or more of an amount of the slurry provided to each of the plural delivery nozzles, a pressure of the slurry provided to each of the plural delivery nozzles, a flow rate at which the slurry is provided to each of the plural delivery nozzles, a temporal duration at which the slurry is provided to each of the plural delivery nozzles, or a time at which the slurry is provided to each of the plural delivery nozzles.

11. The coating system of claim 1, wherein the slurry comprises a first fluid and a slurry of ceramic particles and a second fluid, wherein the slurry is configured to be formed inside the housing.

12. The coating system of claim 11, wherein the first fluid is configured to promote evaporation of the second fluid as droplets of the slurry traverse from the housing toward the plural surfaces of the component via the plural delivery nozzles.

13. The coating system of claim 1, wherein the spray nozzle segment device is configured to be inserted into a turbine engine to spray the slurry onto one or more surfaces of the turbine engine without disassembling the turbine engine.

14. The coating system of claim 1, wherein the housing is shaped to control a flow rate of the slurry between the inlet of the housing and the plural delivery nozzles of the housing.

15. A method comprising:

maintaining a position of a spray nozzle segment device inside a component with a support fixture, the spray nozzle segment device comprising a housing configured to receive a slurry, the housing comprising an inlet configured to receive the slurry and plural delivery nozzles, wherein the slurry is configured to be concurrently directed onto plural surfaces of the component via the plural delivery nozzles, the spray nozzle segment device configured to be disposed radially outward of a central axis of the component and shaped to extend circumferentially about at least part of the central axis of the component, the support fixture sized to be partially inserted into one or more openings of the component, wherein the spray nozzle segment device is configured to be operably coupled with the support fixture such that the support fixture maintains a position of the spray nozzle segment device within the component; and

spraying the slurry onto the surface of the component as a coating on the component, wherein the spray nozzle segment device is configured to remain stationary in the position while the slurry is configured to be concurrently directed onto the plural surfaces of the component via the plural delivery nozzles.

16. The method of claim 15, further comprising disposing plural spray nozzle segment devices radially outward of the central axis of the component, each of the spray nozzle segment devices configured to be operably coupled with each other spray nozzle segment device in order to form a rail system extending circumferentially about at least part of the central axis of the component.

17. The method of claim 16, further comprising maintaining a position of each of the plural spray nozzle segment devices inside the component with plural support fixtures, wherein each of the plural spray nozzle segment devices are configured to remain stationary in the position while the slurry is configured to be concurrently directed onto the plural surfaces of the component via the plural delivery nozzles.

18. The method of claim 16, further comprising controlling operation of one or more valves of a reservoir coupled to the plural spray nozzle segment devices in order to control one or more of an amount of the slurry provided to each of the spray nozzle segment devices, a pressure of the slurry provided to each of the spray nozzle segment devices, a flow rate at which the slurry is provided to each of the spray nozzle segment devices, a temporal duration at which the slurry is provided to each of the spray nozzle segment devices, or a time at which the slurry is provided to each of the spray nozzle segment devices.

19. The method of claim 15, further comprising controlling one or more of an amount of the slurry provided to the spray nozzle segment device, a pressure of the slurry provided to the spray nozzle segment device, a flow rate at which the slurry is provided to the spray nozzle segment device, a temporal duration at which the slurry is provided to the spray nozzle segment device, or a time at which the slurry is provided to the spray nozzle segment device with a spray controller operably coupled with the spray nozzle segment device.

20. The method of claim 15, further comprising controlling one or more of an amount of the slurry provided to each of the plural delivery nozzles, a pressure of the slurry provided to each of the plural delivery nozzles, a flow rate at which the slurry is provided to each of the plural delivery nozzles, a temporal duration at which the slurry is provided to each of the plural delivery nozzles, or a time at which the slurry is provided to each of the plural delivery nozzles with a spray controller operably coupled with the spray nozzle segment device.

21. The method of claim 15, further comprising inserting the spray nozzle segment device into a turbine engine to spray the slurry onto plural surfaces of the turbine engine without disassembling the turbine engine.