

A B S T R A C TPLASMA ARC SPRAY GUN AND ANODE FOR IT

5 An improved anode (127, 157) for a plasma arc spray
gun to give a spray gun having higher deposition efficiency
and longer lasting anodes (127, 154) and cathodes (130)
than prior spray guns. Such spray guns carry particles in
a stream of primary gas. The anode (127) of a relatively
10 low velocity subsonic spray gun has an interior with five
sections, two of which have cylindrical inner surfaces
(137, 145) and three of which have frusto-conical surfaces
(141, 149, 153). The cathode tip (150) is located within
the anode interior such that the electrical arc between the
15 anode (127) and cathode (130) attaches to the anode (127)
at a circular line at a junction of a cylindrical surface
and a frusto-conical surface. Relatively high velocity
subsonic versions of the plasma arc spray gun utilize
anodes (157) with three interior sections (163, 165, 167)
20 and streamlined passages for vortex stabilized flow of the
primary gas. The primary gas flows in a vortex such that
the point of attachment of the arc to the anode (157)
travels continuously along the circular line to reduce
anode wear. The improved gas dynamics cools the cathode tip
25 (151, 179) and thereby increases its service life.

(FIGURE 3)

This Sheet Has Been Replaced

