

Abstract**Plasma torch with a lateral injector**

The invention relates to a plasma torch, comprising: a plasma generator comprising a cathode extending along an axis X and an anode (24), the cathode and the anode being arranged so as to be capable of generating, in a chamber (26), an electric arc between the anode and the cathode due to an electrical voltage, the plasma generator also comprising a plasmagen gas injection device (30) comprising an injection pipe (72) leading, along an injection axis (I_i), to an injection opening (74) in the chamber; a means for injecting a material to be discharged into a plasma flow generated by said plasma generator, the plasma torch being characterized in that: the relationship R'' between: the radial distance (y_i) of said injection opening, defined as the minimum distance between the axis X and the center of said injection orifice; the largest transverse size (D_C) of the cathode in the region of the chamber downstream from the position P_{AC} , wherein P_{AC} denotes the axial position of maximum radial mutual encroachment of the anode and the cathode, is less than 2.5; and the projection of the injection axis (I_i) into a transverse plane passing through the center of the injection orifice of said injection conduit forms an angle β less than 45° with a radius extending into said transverse plane and passing through the axis X and through the center of said injection orifice.

Figure 1