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(54) **ELECTRODES FOR A PLASMA ARC PROCESSING SYSTEM**

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(57) **ABSTRACT**

An electrode for a liquid-cooled plasma arc torch is provided that includes a torch body and a cathodic element. The electrode includes an electrode body having a proximal end and a distal end extending along a central longitudinal axis. The electrode also includes a retention region located at the proximal end of the electrode body. The retention region is shaped to engage a first portion of the torch body for retaining the electrode within the torch body. The electrode additionally includes a current interface region located axially proximal to the retention region on the electrode body. The current interface region configured to slidably engage a second portion of the torch body while electrically communicating with the cathodic element of the plasma arc torch. The electrode further includes a sealing member circumferentially disposed about the electrode body. The sealing member is located axially distal to the current interface region and the retention region.

