CLAIMS:

1. An electrical discharge machining spindle (12) for releasably holding an electrode (16), the spindle comprising:

an elongated spindle body (40) having a longitudinal axis;

a movable sleeve (44) surrounding the spindle body (40) and extending along the longitudinal axis;

a first contact element (50) having a first electrode clamping surface (80) comprising a groove (82) extending along the longitudinal axis, the groove configured to receive the electrode (16) therein;

a second contact element (52) having a second electrode clamping surface (86) adjacent the first electrode clamping surface of the first contact element;

an electrode guide (70) including a passageway (90) and configured to guide the electrode (16) toward the first and the second electrode clamping surfaces (80,86);

a locking element (76) that is actuated by the sleeve (44) to selectively apply pressure to the second contact element (52);

wherein the sleeve (44) is moveable along the longitudinal axis between:

an open position in which the sleeve (44) releases a pressure applied to the locking element (76), thereby releasing a pressure applied to the first and second electrode clamping surfaces (80,86) of the first and second contact elements (50,52); and

a clamping position in which the sleeve (44) applies pressure to the locking element (76) to force the locking element (76) against the second contact element to clamp the electrode (16) within the groove (82) and between the first and second electrode clamping surfaces (80,86); and

a biasing element (46) biasing the sleeve (44) into the clamping position,

wherein:

pressure from the locking element (76) forces the second contact element (52) to shift toward the first contact element (50); and

the first contact element (50) with the groove (82) is non-moveable for clamping and releasing the electrode (16).

2. The spindle of claim 1 wherein the locking element comprises one of a ball, a pin, or a spring.

3. The spindle of claim 1 wherein the second electrode clamping surfaces comprises a planar surface.

4. The spindle of claim 1 further comprising a pneumatic cylinder (24) configured to move the sleeve (44) into the open position against the bias of the biasing element (46).

5. The spindle of claim 1 further comprising an electrode seal (62) having a passageway (94) for receiving the electrode (16), wherein pressure from a supply of flushing fluid to the spindle seals the electrode seal (62) around the electrode (16).

6. The spindle body of claim 1 wherein the first contact element (50) defines a first cavity (84) having angled walls that taper toward the groove (82) for guiding the electrode (16) into the groove (82).

7. The spindle body of claim 12 wherein the second contact element (62) defines a second cavity (88) having angled walls, the first and second cavities (84,88) configured to cooperate to guide the electrode (16) into the groove (82).