

**CPC****COOPERATIVE PATENT CLASSIFICATION****B23H**

**WORKING OF METAL BY THE ACTION OF A HIGH CONCENTRATION OF ELECTRIC CURRENT ON A WORKPIECE USING AN ELECTRODE WHICH TAKES THE PLACE OF A TOOL; SUCH WORKING COMBINED WITH OTHER FORMS OF WORKING OF METAL** (processes for the electrolytic or electrophoretic production of coatings, electroforming, or apparatus therefor [C25D](#) ; processes for the electrolytic removal of material from objects [C25F](#) ; manufacturing printed circuits using precipitation techniques to apply the conductive material to form the desired conductive pattern [H05K 3/18](#))

**NOTE**

This subclass covers the working of metal described as "electroerosion"

**B23H 1/00**

**Electrical discharge machining, i.e. removing metal with a series of rapidly recurring electrical discharges between an electrode and a workpiece in the presence of a fluid dielectric**

**B23H 1/02**

- . Electric circuits specially adapted therefor, e.g. power supply, control, preventing short circuits or other abnormal discharges

**B23H 1/022**

- . . {for shaping the discharge pulse train ([B23H 1/024](#) takes precedence) }

**B23H 1/024**

- . . {Detection of, and response to, abnormal gap conditions, e.g. short circuits (preventing short circuits or other abnormal discharges by altering machining parameters using adaptive control [B23H 7/16](#)) }

**B23H 1/026**

- . . {Power supply protection, e.g. detection of power switch breakdown }

**B23H 1/028**

- . . {for multiple gap machining }

**B23H 1/04**

- . Electrodes specially adapted therefor or their manufacture ([B23H 9/00](#) takes precedence)

**B23H 1/06**

- . . Electrode material

**B23H 1/08**

- . Working media

**B23H 1/10**

- . Supply or regeneration of working media

**B23H 3/00**

**Electrochemical machining, i.e. removing metal by passing current between an electrode and a workpiece in the presence of an electrolyte**

**B23H 3/02**

- . Electric circuits specially adapted therefor, e.g. power supply, control, preventing short circuits

**B23H 3/04**

- . Electrodes specially adapted therefor or their manufacture ([B23H 9/00](#) takes precedence)

**B23H 3/06**

- . . Electrode material

**B23H 3/08**

- . Working media

**B23H 3/10**

- . Supply or regeneration of working media

**B23H 5/00****Combined machining**

- B23H 5/02 . Electrical discharge machining combined with electrochemical machining
- B23H 5/04 . Electrical discharge machining combined with mechanical working
- B23H 5/06 . Electrochemical machining combined with mechanical working, e.g. grinding or honing
- B23H 5/08 . . Electrolytic grinding
- B23H 5/10 . Electrodes specially adapted therefor or their manufacture ([B23H 1/04](#), [B23H 3/04](#) take precedence)
- B23H 5/12 . Working media
- B23H 5/14 . Supply or regeneration of working media

**B23H 7/00****Processes or apparatus applicable to both electrical discharge machining and electrochemical machining**

- B23H 7/02 . Wire-cutting
- B23H 7/04 . . Apparatus for supplying current to working gap; Electric circuits specially adapted therefor
- B23H 7/06 . . Control of the travel curve of the relative movement between electrode and workpiece
- B23H 7/065 . . . {Electric circuits specially adapted therefor }
- B23H 7/08 . . Wire electrodes
- B23H 7/10 . . . Supporting, winding or electrical connection of wire-electrode
- B23H 7/101 . . . . {Supply of working media }
- B23H 7/102 . . . . {Automatic wire threading }
- B23H 7/104 . . . . {Wire tension control }
- B23H 7/105 . . . . {Wire guides }
- B23H 7/107 . . . . {Current pickups }
- B23H 7/108 . . . . {Used wire disposal devices }
- B23H 7/12 . Rotating-disc electrodes
- B23H 7/14 . Electric circuits specially adapted therefor, e.g. power supply { ([B23H 3/02](#) takes precedence) }
- B23H 7/16 . . for preventing short circuits or other abnormal discharges {by altering machining parameters using adaptive control }
- B23H 7/18 . . for maintaining or controlling the desired spacing between electrode and workpiece
- B23H 7/20 . . for programme-control, e.g. adaptive ([programme-control systems in general G05B 19/00](#))
- B23H 7/22 . Electrodes specially adapted therefor or their manufacture ([B23H 7/08](#), [B23H 7/12](#), [B23H 9/00](#) take precedence)
- B23H 7/24 . . Electrode material

- B23H 7/26 . Apparatus for moving or positioning electrode relatively to workpiece; Mounting of electrode
- B23H 7/265 . . {Mounting of one or more thin electrodes }
- B23H 7/28 . . Moving electrode in a plane normal to the feed direction, e.g. orbiting
- B23H 7/30 . . Moving electrode in the feed direction ([B23H 7/32 takes precedence](#))
- B23H 7/32 . . Maintaining desired spacing between electrode and workpiece {e.g. by means of particulate material }
- B23H 7/34 . Working media
- B23H 7/36 . Supply or regeneration of working media
- B23H 7/38 . Influencing metal working by using specially adapted means not directly involved in the removal of metal, e.g. ultrasonic waves, magnetic fields or laser irradiation
- B23H 9/00** **Machining specially adapted for treating particular metal objects or for obtaining special effects or results on metal objects** ([heat treatment by cathodic discharge C21D 1/38](#))
- B23H 9/001 . {Disintegrating }
- B23H 9/003 . {Making screw-threads or gears }
- B23H 9/005 . {Machining elongated bodies, e.g. rods }
- B23H 9/006 . {Cavity sinking ([B23H 9/14 takes precedence](#)) }
- B23H 9/008 . {Surface roughening or texturing }
- B23H 9/02 . Trimming or deburring { ([B23H 9/003 takes precedence](#)) }
- B23H 9/04 . Treating surfaces of rolls
- B23H 9/06 . Marking or engraving
- B23H 9/08 . Sharpening
- B23H 9/10 . Working turbine blades or nozzles
- B23H 9/12 . Forming parts of complementary shape, e.g. punch-and-die
- B23H 9/14 . Making holes
- B23H 9/16 . . using an electrolytic jet
- B23H 9/18 . Producing external conical surfaces or spikes ([B23H 9/08 takes precedence](#))
- B23H 11/00** **Auxiliary apparatus or details, not otherwise provided for**
- B23H 11/003 . {Mounting of workpieces, e.g. working-tables }

B23H 11/006 . {Electrical contacts or wires ([B23H 7/10](#) takes precedence) }

**B23H 2200/00 Specific machining processes or workpieces**

B23H 2200/10 . for making bearings

B23H 2200/20 . for making conical bores

B23H 2200/30 . for making honeycomb structures

**B23H 2300/00 Power source circuits or energization**

B23H 2300/10 . Pulsed electrochemical machining

B23H 2300/12 . . Positive and negative pulsed electrochemical machining

B23H 2300/20 . Relaxation circuit power supplies for supplying the machining current, e.g. capacitor or inductance energy storage circuits

B23H 2300/22 . . Circuits using or taking into account line impedance to shape the discharge pulse

**B23H 2400/00 Moving mechanisms for tool electrodes**

B23H 2400/10 . for rotating the electrode

**B23H 2500/00 Holding and positioning of tool electrodes**

B23H 2500/20 . Methods or devices for detecting wire or workpiece position

**B23H 2600/00 Machining conditions**

B23H 2600/10 . Switching of machining conditions during machining

B23H 2600/12 . . Switching from rough cutting to finish machining