

**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	<ul style="list-style-type: none"> <li>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</li> </ul>
<b>B23H 9/00</b>	<b>Machining specially adapted for treating particular metal objects or for obtaining special effects or results on metal objects</b> ( <a href="#">heat treatment by cathodic discharge C21D 1/38</a> )
B23H 9/001	<ul style="list-style-type: none"> <li>{Disintegrating}</li> </ul>
B23H 9/003	<ul style="list-style-type: none"> <li>{Making screw-threads or gears}</li> </ul>
B23H 9/005	<ul style="list-style-type: none"> <li>{Machining elongated bodies, e.g. rods}</li> </ul>
B23H 9/006	<ul style="list-style-type: none"> <li>{Cavity sinking (<a href="#">B23H 9/14</a> takes precedence)}</li> </ul>
B23H 9/008	<ul style="list-style-type: none"> <li>{Surface roughening or texturing}</li> </ul>
B23H 9/02	<ul style="list-style-type: none"> <li>Trimming or deburring {(<a href="#">B23H 9/003</a> takes precedence)}</li> </ul>
B23H 9/04	<ul style="list-style-type: none"> <li>Treating surfaces of rolls</li> </ul>
B23H 9/06	<ul style="list-style-type: none"> <li>Marking or engraving</li> </ul>
B23H 9/08	<ul style="list-style-type: none"> <li>Sharpening</li> </ul>
B23H 9/10	<ul style="list-style-type: none"> <li>Working turbine blades or nozzles</li> </ul>
B23H 9/12	<ul style="list-style-type: none"> <li>Forming parts of complementary shape, e.g. punch-and-die</li> </ul>
B23H 9/14	<ul style="list-style-type: none"> <li>Making holes</li> </ul>
B23H 9/16	<ul style="list-style-type: none"> <li>.. using an electrolytic jet</li> </ul>
B23H 9/18	<ul style="list-style-type: none"> <li>Producing external conical surfaces or spikes (<a href="#">B23H 9/08</a> takes precedence)</li> </ul>
<b>B23H 11/00</b>	<b>Auxiliary apparatus or details, not otherwise provided for</b>
B23H 11/003	<ul style="list-style-type: none"> <li>{Mounting of workpieces, e.g. working-tables}</li> </ul>
B23H 11/006	<ul style="list-style-type: none"> <li>{Electrical contacts or wires (<a href="#">B23H 7/10</a> takes precedence)}</li> </ul>
<b>B23H 2200/00</b>	<b>Specific machining processes or workpieces</b>
B23H 2200/10	<ul style="list-style-type: none"> <li>for making bearings</li> </ul>
B23H 2200/20	<ul style="list-style-type: none"> <li>for making conical bores</li> </ul>
B23H 2200/30	<ul style="list-style-type: none"> <li>for making honeycomb structures</li> </ul>
<b>B23H 2300/00</b>	<b>Power source circuits or energization</b>
B23H 2300/10	<ul style="list-style-type: none"> <li>Pulsed electrochemical machining</li> </ul>
B23H 2300/12	<ul style="list-style-type: none"> <li>.. Positive and negative pulsed electrochemical machining</li> </ul>
B23H 2300/20	<ul style="list-style-type: none"> <li>Relaxation circuit power supplies for supplying the machining current, e.g. capacitor or inductance energy storage circuits</li> </ul>
B23H 2300/22	<ul style="list-style-type: none"> <li>.. Circuits using or taking into account line impedance to shape the discharge pulse</li> </ul>
<b>B23H 2400/00</b>	<b>Moving mechanisms for tool electrodes</b>
B23H 2400/10	<ul style="list-style-type: none"> <li>for rotating the electrode</li> </ul>
<b>B23H 2500/00</b>	<b>Holding and positioning of tool electrodes</b>
B23H 2500/20	<ul style="list-style-type: none"> <li>Methods or devices for detecting wire or workpiece position</li> </ul>
<b>B23H 2600/00</b>	<b>Machining conditions</b>

- B23H 2600/10 . Switching of machining conditions during machining
- B23H 2600/12 . . Switching from rough cutting to finish machining