

# CPC COOPERATIVE PATENT CLASSIFICATION

## B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

### SHAPING

## B23 MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR

(NOTES omitted)

## 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"

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>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</b>	5/02	• Electrical discharge machining combined with electrochemical machining
		5/04	• Electrical discharge machining combined with mechanical working
1/02	• Electric circuits specially adapted therefor, e.g. power supply, control, preventing short circuits or other abnormal discharges	5/06	• Electrochemical machining combined with mechanical working, e.g. grinding or honing
1/022	• . {for shaping the discharge pulse train ( <a href="#">B23H 1/024</a> takes precedence)}	5/08	• . Electrolytic grinding
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 <a href="#">B23H 7/16</a> )}	5/10	• Electrodes specially adapted therefor or their manufacture ( <a href="#">B23H 1/04</a> , <a href="#">B23H 3/04</a> take precedence)
1/026	• . {Power supply protection, e.g. detection of power switch breakdown}	5/12	• Working media
1/028	• . {for multiple gap machining}	5/14	• Supply or regeneration of working media
1/04	• Electrodes specially adapted therefor or their manufacture ( <a href="#">B23H 9/00</a> takes precedence)	<b>7/00</b>	<b>Processes or apparatus applicable to both electrical discharge machining and electrochemical machining</b>
1/06	• . Electrode material	7/02	• Wire-cutting
1/08	• Working media	7/04	• . Apparatus for supplying current to working gap; Electric circuits specially adapted therefor
1/10	• Supply or regeneration of working media	7/06	• . Control of the travel curve of the relative movement between electrode and workpiece
<b>3/00</b>	<b>Electrochemical machining, i.e. removing metal by passing current between an electrode and a workpiece in the presence of an electrolyte</b>	7/065	• . . {Electric circuits specially adapted therefor}
3/02	• Electric circuits specially adapted therefor, e.g. power supply, control, preventing short circuits	7/08	• . Wire electrodes
3/04	• Electrodes specially adapted therefor or their manufacture ( <a href="#">B23H 9/00</a> takes precedence)	7/10	• . . Supporting, winding or electrical connection of wire-electrode
3/06	• . Electrode material	7/101	• . . . {Supply of working media}
3/08	• Working media	7/102	• . . . {Automatic wire threading}
3/10	• Supply or regeneration of working media	7/104	• . . . {Wire tension control}
<b>5/00</b>	<b>Combined machining</b>	7/105	• . . . {Wire guides}
		7/107	• . . . {Current pickups}
		7/108	• . . . {Used wire disposal devices}
		7/12	• Rotating-disc electrodes
		7/14	• Electric circuits specially adapted therefor, e.g. power supply {( <a href="#">B23H 3/02</a> takes precedence)}

7/16	. . for preventing short circuits or other abnormal discharges {by altering machining parameters using adaptive control}	2300/12	. . Positive and negative pulsed electrochemical machining
7/18	. . for maintaining or controlling the desired spacing between electrode and workpiece	2300/20	. Relaxation circuit power supplies for supplying the machining current, e.g. capacitor or inductance energy storage circuits
7/20	. . for programme-control, e.g. adaptive (programme-control systems in general G05B 19/00)	2300/22	. . Circuits using or taking into account line impedance to shape the discharge pulse
7/22	. Electrodes specially adapted therefor or their manufacture (B23H 7/08, B23H 7/12, B23H 9/00 take precedence)	2400/00	<b>Moving mechanisms for tool electrodes</b>
7/24	. . Electrode material	2400/10	. for rotating the electrode
7/26	. Apparatus for moving or positioning electrode relatively to workpiece; Mounting of electrode	2500/00	<b>Holding and positioning of tool electrodes</b>
7/265	. . {Mounting of one or more thin electrodes}	2500/20	. Methods or devices for detecting wire or workpiece position
7/28	. . Moving electrode in a plane normal to the feed direction, e.g. orbiting	2600/00	<b>Machining conditions</b>
7/30	. . Moving electrode in the feed direction (B23H 7/32 takes precedence)	2600/10	. Switching of machining conditions during machining
7/32	. . Maintaining desired spacing between electrode and workpiece {, e.g. by means of particulate material}	2600/12	. . Switching from rough cutting to finish machining
7/34	. Working media		
7/36	. Supply or regeneration of working media		
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		
9/00	<b>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)</b>		
9/001	. {Disintegrating}		
9/003	. {Making screw-threads or gears}		
9/005	. {Machining elongated bodies, e.g. rods}		
9/006	. {Cavity sinking (B23H 9/14 takes precedence)}		
9/008	. {Surface roughening or texturing}		
9/02	. Trimming or deburring {(B23H 9/003 takes precedence)}		
9/04	. Treating surfaces of rolls		
9/06	. Marking or engraving		
9/08	. Sharpening		
9/10	. Working turbine blades or nozzles		
9/12	. Forming parts of complementary shape, e.g. punch-and-die		
9/14	. Making holes		
9/16	. . using an electrolytic jet		
9/18	. Producing external conical surfaces or spikes (B23H 9/08 takes precedence)		
11/00	<b>Auxiliary apparatus or details, not otherwise provided for</b>		
11/003	. {Mounting of workpieces, e.g. working-tables}		
11/006	. {Electrical contacts or wires (B23H 7/10 takes precedence)}		
2200/00	<b>Specific machining processes or workpieces</b>		
2200/10	. for making bearings		
2200/20	. for making conical bores		
2200/30	. for making honeycomb structures		
2300/00	<b>Power source circuits or energization</b>		
2300/10	. Pulsed electrochemical machining		