

The invention relates to the field of electrochemical metal working and can find application in mechanical engineering, namely in the aircraft building, instrument engineering, tooling, etc.

The tool electrode for combined dimensional electrochemical and laser metal working comprises a pulsed electromagnetic radiation source (1), a prism (2), a reflector (3) and a metal cathode (5), the upper end of which is inserted into a vacuum chamber, made of electrically conductive side walls (6) with a transparent cover (7) and a dielectric washer (8) for fixing and separating the cathode (5) from the side walls (6). The lower end of the cathode (5) is immersed in an electrolyte bath, wherein is placed a workpiece (4). The side walls (6) are electrically connected to the surface of the workpiece (4).

The process for combined dimensional electrochemical and laser metal working consists in irradiating the surface of the workpiece with an electromagnetic radiation beam, which is divided by a prism into two beams, one of which is directed onto the nonfunctional surface of the cathode, the space around which is vacuumized, and the second is directed by a reflector onto the surface of the workpiece. The laser radiation power of the nonfunctional cathode surface is set in the range  $1 \dots 10 \text{ GW/cm}^2$ , with a pulse duration from 10 to 100 nanoseconds.

Claims: 2

Fig.: 1

