

The invention relates to the mechanical engineering technology, namely to processes for electroerosion machining of mated surfaces of the machine elements, for example, of the gear-wheels, bolts etc.

The process consists in that the tool-electrode, made in the form of a body of revolution, is communicated a rotary motion and an advance to the piece-electrode from the machine tool tracking mechanism. Onto the revolving table of the machine tool, rigidly connected to the fixed rectangular system of coordinates  $Oxyz$ , there is fixed the piece-electrode, the axis of which coincides with the axis  $z$ . The tool-electrode is rigidly coupled with the mobile rectangular system of coordinates  $Ox_1y_1z_1$ , at the same time, the origin of the rectangular systems of coordinates  $Oxyz$  and  $Ox_1y_1z_1$  coincides with the precession centre, the axis  $z_1$  describes a conic surface with the vertex in precession centre, forming the nutation angle with the axis  $z$ . The tool-electrode, the axis of which passes through the precession centre at an angle with the plane, formed by the axes  $x_1y_1$ , is communicated a supplementary motion about the axes of coordinates  $x_1$  and  $y_1$  in accordance with the relation:

$$x=(j+r/\operatorname{tg}\beta)(1-\cos\theta)\cos\psi/\sin\psi,$$

$$y=(j+r/\operatorname{tg}\beta)(\sin^2\psi+\cos\theta\cos^2\psi),$$

$$z=(j+r/\operatorname{tg}\beta)(\sin\theta\cos\psi),$$

where  $\beta$  – the taper angle of the tool-electrode;

$r$  – the radius of the tool-electrode;

$j$  – the electrode clearance;

$\theta$  – the nutation angle, equal to the angle between the axes  $z$  and  $z_1$ ;

$\psi$  – the precession angle.

Per one revolution of the main axis, the tool-electrode makes a precession motion, and the piece-electrode rotates at an angle determined by the relationship

$$\psi=(Z_1-Z_2)2\pi/Z_2,$$

where  $Z_1$  – the amount of teeth of the gear-wheel;

$Z_2$  – the amount of precession cycles.

The active surface of the tool-electrode is made in the form of a hyperboloid of revolution of one sheet.

Claims: 3

Fig.: 1