The invention relates to the field of metal electroerosion machining and may be used in the machining of mated surfaces of different machine parts.

The process for the electroerosion machining of pieces with complicated contour and oblique surfaces, realized by means of an electrode-wire rewound onto two bearing elements placed on both sides of the workpiece, consists in that onto the rotary table of the machine tool rigidly joined with the fixed rectangular system of coordinates Oxyz there is fixed the piece-electrode, the axis of which coincides with the axis z, at the same time the electrode-wire is rigidly joined with the mobile rectangular system of coordinates $Ox_1y_1z_1$. The origin of the rectangular system of coordinates Oxyz and $Ox_1y_1z_1$ coincides with the precession centre, the axis z_1 describes a conic surface with the peak in the precession centre, forming the nutation angle with the axis z. The electrode wire, placed into the spiral flute with arched section made onto the surface of the guide roller and placed at an angle with the axis of the guide roller, 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:

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

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

$$z = (j + (d_{sr} + r_f)/tg\beta)(sin\theta cos\psi),$$

where β – the taper angle of the guide roller;

d_{sr} – the diameter of the electrode-wire;

j – the electrode clearance;

r_f – the distance from the axis of the guide roller up to the spiral flute;

q – the nutation angle between the axes z and z_1;

ψ – the precession angle.

Per revolution of the crankshaft of the machine tool the electrode-wire makes a precession and an oscillatory motion around the axis of the guide roller and, the piece-electrode rotates at an angle determined by the relation

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

where Z_1 – the number of teeth of the machined gear-wheel;

Z_2 – the number of precession cycles.

The spiral flute area of the guide roller is equal to the electrode-wire area.

Claims: 3
Fig.: 5