

Method for piercing a blank on a horizontal hydraulic press involves positioning the blank in the die by moving it into place and piercing the blank to form a through-opening in two stages. In the first stage, the blank is punched using a piercing punch with a spherical head, with support on the rear end of the blank from the side of the support punch, to form a bottom; in the second stage, the bottom is punched without support on the rear end of the blank by moving the support punch in the direction of piercing. Wherein, piercing the blank in the first stage is performed using the spherical head of the support punch to form a bottom, the thickness of which is determined by the expression:

$$\delta \leq \frac{R_{on} + R_n - \sqrt{R_{on}^2 - \frac{D_n^2}{4}} - \sqrt{R_n^2 - \frac{D_n^2}{4}}}{0,72},$$

where R_{on} – the radius of the spherical head of the support roller; R_n – the radius of the spherical head of the piercing punch; D_n – the diameter of the piercing punch head.