

RESEARCH OF THE PROCESS OF COLD EXHAUST NUTS SPECIAL FOR AUTOMOTIVE INDUSTRY

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The original data for the theses were selected several variants of manufacture of the detail "Nut". All variants are presented in Fig. 1

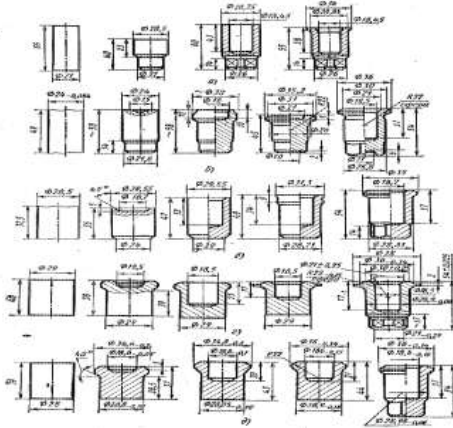


Fig. 1 - Major variants of shaping when stamping a stepped hollow part of the type of cap nut

The fifth variant (Fig. 1, d) of the nut was made, since the other variants have a number of drawbacks: the formation of a burr, the subsequent machining of the part. The fifth option is the most optimal, since it has no burrs and does not require further surface treatment. According to the proposed technology, in the first transition, the calibration of the workpiece with the formation of the mark and the set of metal into the flange is carried out. In the second transition, by reversing the extrusion, a cavity equal to about half the given depth is obtained. This improves the working conditions of the punch for final extrusion, and simplifies the requirements for the load curve of the equipment. In order that, when extruding in the second transition, the influx on the outer surface of the flange could not be formed, the level of installation of the lower punch in the second transition is lower (1 mm) than in the first. In the third transition, the flange is calibrated without burring. In the fourth transition with a combined extrusion, the tail part of the part and the cavity are filled up to the full set depth. As a result of the calculation of the finite element method, the cold pressing of the blanks of the type of cap nut is definitely an effort and a stress-deformed state, which allows us to develop the design of the die-casting and choose the equipment for the manufacture of these parts.