TO STAMPS THERMAL PROCESSING TO GIVE

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Abstract: For hot working, stamping tools are required to have heat resistance, bending resistance, brittle fracture resistance and other properties. Stamping tools operate simultaneously under the influence of high temperature cyclic changes and strong pressure of This process is considered a complex process, therefore, only alloyed steels are used in the development of stamping tools. Such steels are required to be resistant to high heat, ductile, resistant to brittle fracture and soot formation, and to be easy to heat treat. In addition, such steels are required to have a minimum degree of deformation during heat treatment, be resistant to decarburization.

Keywords: The main types of dies are made from forged blanks. The forging process is performed to reduce the blank to the required size and shape and to improve its properties by eliminating defects (e.g., liquation, anisotropic properties, etc.) that are formed during metallurgical melting.

Introduction: The technological process of manufacturing dies includes initial thermal treatment (ITT), mechanical processing, final thermal treatment (FTT), grinding, and inspection. To reduce the hardness of the DTI coating to improve its cutting and machinability, structure to grind grains, residue It is used to reduce stress and prepare the structure for the TTI process. For large-sized shells, a full or isothermal annealing process is performed as DTI, the target is granular pearlite and carbides are evenly distributed.

Thermal annealing and release of the required properties for stamps using TTI processing to give types provides. Stamps various under the circumstances

performance them every kind branded from steel preparation, various similar to beat and release requires the transfer of types (Table 4.2). At the same time, increasing the heating temperature for forging increases the heat resistance and hardenability of stamped steels, but the growth of austenite grains reduces the viscosity value.

When choosing a TTI procedure, it is important to consider the deformation in the dies as a result of heat treatment. In complex-shaped dies, it is important to avoid after or stepped or isothermal to beat application with It is possible to reduce deformation by increasing the amount of retained austenite in the structure.

Table 1

Stamps for steels DTI order

Steel grades	Isothermal annealing			Complete soften		h release at temperature	
	t, °C	*t*, °C	*HB*	*t*, ° C	*HB*	*t*, ° C	*HB*
5XNM	760- 790	650- 660	197- 220	760- 790	197- 241	680- 700	207- 241
5XNV	760- 790	650- 660	209-229	760-790	207-241	700-720	207-241
4XMFS	810-830	670-700	197-241	810-820	197-255	700-750	241
4X5MFS 4X5MF1S	840-860	670-690	187-241	840-860	229-241	760-780	241-255
3X2V8F	860-880	660-700	229-269	860-880	229-269	750-780	269
5X3V3MFS	840-880	690-700	229-255	840-880	229-255	750-780	269
2X6V8M2K8	880-900	640-705	241- 269	880- 900	241- 269	780- 820	269

Small-sized shells are of simple shape and martensite after hammering. or bainite structure demand made for stamps applied, such stamps high at temperature, A $_S$ critical to the point close was at temperature is released. Pokovka to the oven while loading the oven temperature 600 °C from high

unless is loaded in the case .

Stamps steels thermal processing to give results

Large on stamps main worker part from discharge except, general The part is additionally annealed at high temperatures, the purpose of which is to reduce the hardness of the overall part to 30-35 *HRC* , increase toughness, eliminate cracking, and prevent brittle fracture when placed in a hammer-pressing device. Stamps TTI to preparation below in order will be held:

- cleaning surface in parts rust harvest that there was no, oil remains and the absence of others;
- one branded and size close was stamps set shaping. Big in the ovens one at the time 10 to the bottom stamps to beat for to heat possible;
- stamp the main oxidation of working surfaces and cover to prevent carbon loss (Figure 4.6). For this, tree stumps were used, as well as (30 % up to) new carburetors or (20 % up to) dry cast iron shavings are used.

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