

MECHANICAL ABOUT ENGINEERING TECHNOLOGY GENERAL INFORMATION

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Abstract

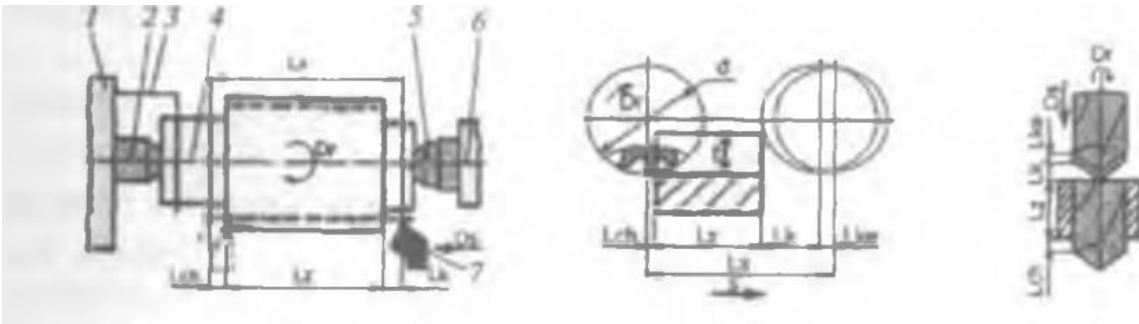
TA production planning and accounting is the main unit. Based on the actions, the volume, time, and price of the production of the product (item) are determined, and the necessary number of workers, equipment, tools, small and measuring tools, and the cost of mechanical processing are determined.

Keywords

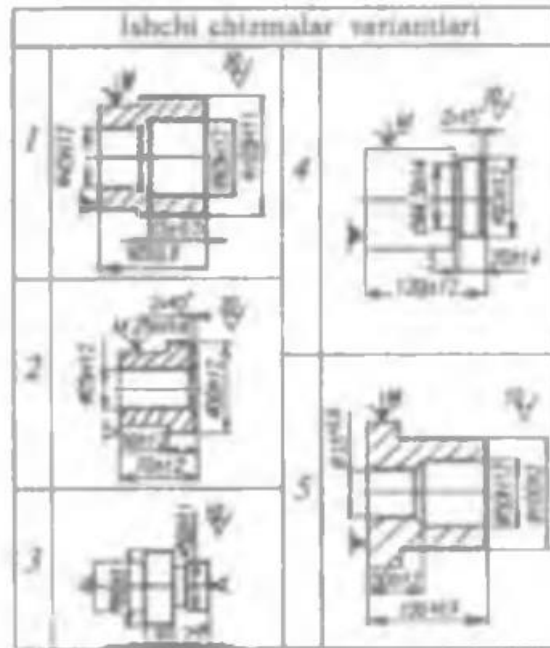
In mass production, the repetition of the same process over a long period of time has no time for preparatory finishing time. In case of individual production, the - preparatory-finishing time is produced as a unit of time

In addition, a production plan, quality control, and delivery schedule will be developed. In addition to technological operations, auxiliary operations (transportation, control, labeling, cleaning from debris, etc.) do not change the quantity and quality, but are necessary for the performance of TJ. Technological transition means the finished part of the technological operation, which consists of body processing or joining of details, and characterizes the permanence of the used tools and surfaces. Usual universal metal cutting is performed on machines, technologically advanced machines in constant mode of operation. It is understood that automatic change of the work mode of the machine tool during processing is carried out in the process of processing on TA, numerically controlled (SDB) machines during one technological transition to the body. Dcmak, technological transition is associated with changes in the shape, size and quality of surfaces. The auxiliary transition is a completed part of the technological operation, which is obtained from work and machine movements, and therefore is not related to the change in the shape, size and quality of the surfaces, but is necessary for the technological transition. actions are understood. For example, installation of fittings, replacement of cutting tools, etc. Ishehi yurish is a completed part of the technological transition, which consists of one shift of the small tool relative to the

body, and it is understood that the shape, dimensions, surface cleanliness or properties of the body change.



The middle tooth is part of the technological process. assembly of machined bodies or assembled assembly units. fixed state is understood. Technological operations can be performed in one or more installations. For example, on a lathe, after lathing one side of a steel roller into a three-ear chuck, it is released, re-inserted into the one-ear chuck with the first machined tom, and the other side is machined, and the TA is finished. is considered to be completed in o'maling, and so on. Direction, TA is one. can be done in two or more installations. The first place is an elementary part of the structure of the enterprise where the objects of work are located (where the workers, the technological equipment used by them, the part of the conveyor, temporary equipment, cranes are placed), see Figure 1.1 (DAST 14 .(K)4-83). Figure 1.1. Scheme of the first place: a – tokami; b - locksmith 1-tool (vcrsiak); 2-tool cabinet; 3-Lshchi; 4 – the fence; 5-table; ft-box; 7-wardrobe; 8-crane. Condition (position) is fixed to the device without change in the device size of the machined body or assembled assembly unit. It is said that the fixed axis is relative to the cutting edge or any fixed part of the machine. Mode of operation: on a stop-and-go rotating table (on the aggregate machine): on conveyors with linear or rotary movement (automatic

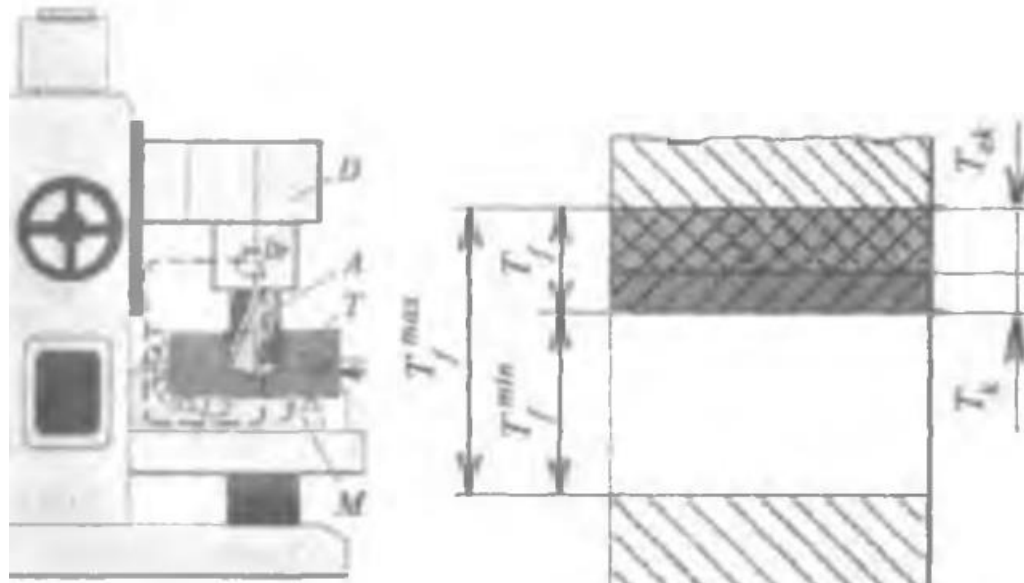


Activity (priyom) is a set of completed worker actions combined for one purpose in the execution of a technological process or part of it. For example, putting the body on the device and lowering it. when performing an auxiliary shot, it is necessary to perform the following actions in sequence: take the body from the box. put it on the device and fix it, start the machine, stop the machine, release the body from the device and put it in another box, etc.

Product is any finished product in the final stage of machine manufacturing. Item machine, unit. part (collective birhk). can even be in tanavor or detal shaJdi. For example. item for the tractor plant – tractor: item for Avlomobile/plant - avlomobile, for the Aggregate plant – reducers of various types. front or rear axles of tractors; For the compressor plant – compressors of various types; For the crankshaft manufacturing plant – crankshaft and liokazo. As a part (collective singular), in a separate work place

assembly refers to the element of the assembly to be combined into a whole.

For example: Tractor engine. gearbox. front or rear axles, starters, etc. The term "detail" refers to an element of a product whose composition and name are made of the same material without assembly operations. For example. one-piece metal housing, die-cast case, stamped sheet steel crankcase and housing.



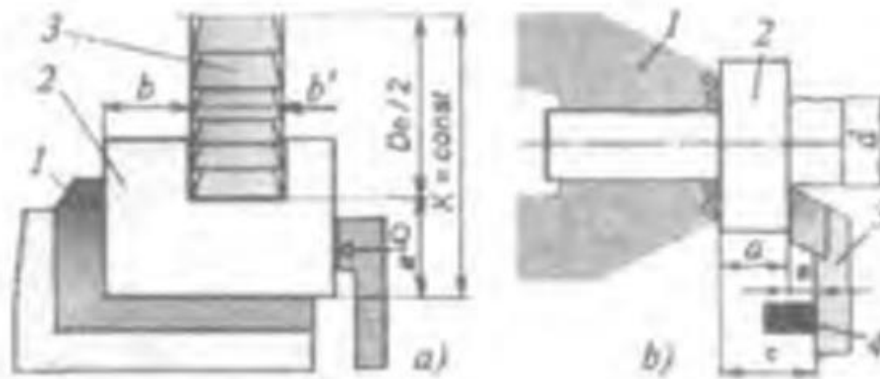
Machines (classes and classes) Machines are defined as a combination of mechanisms or mechanisms designed to generate energy, perform work and provide information. Machines are divided into three classes according to their service functions: Class I machines: Class 2 working machines: Class 3 information machines Machines that convert one form of energy into another form of energy are called motor machines

it is said. For example. machine engines converting fuel energy into mechanical energy; water energy-converting hydro-lubricants, etc. Working machines (tools, equipment, tools, tools). u lan iin g is the form of the subject of labor. measure. ossa % h tools are changed.

For example: turning. drilling, milling machines or various cars, tractors, etc. Information machines, with the help of which you can get various information. For example, car wheel rim balancing. diagnosis; receiving various information from computers and others.

Items - products are mainly divided into three types: main, auxiliary and auxiliary. An order was given by the customer to the production enterprise as the main quantity. The finished product is said to be prepared in the enterprise. This product is shipped to warehouses or delivered to the customer. An auxiliary product is a product prepared by a production enterprise for its own needs in order to use it in the technological process of preparing the main product. For example, in the hardware workshops of the enterprise, there are special devices and devices that are prepared for their needs. cutting and measuring tools, etc. Additional goods are products that are widely consumed in the national economy and are attached to the production enterprise. For example. additional items for the aggregate plant are children's bicycles, wheelchairs, various ladders and can lids;

For the tool factory, a wire rope and conventional shears. locksmith keys. screwdrivers, saws and other tools.



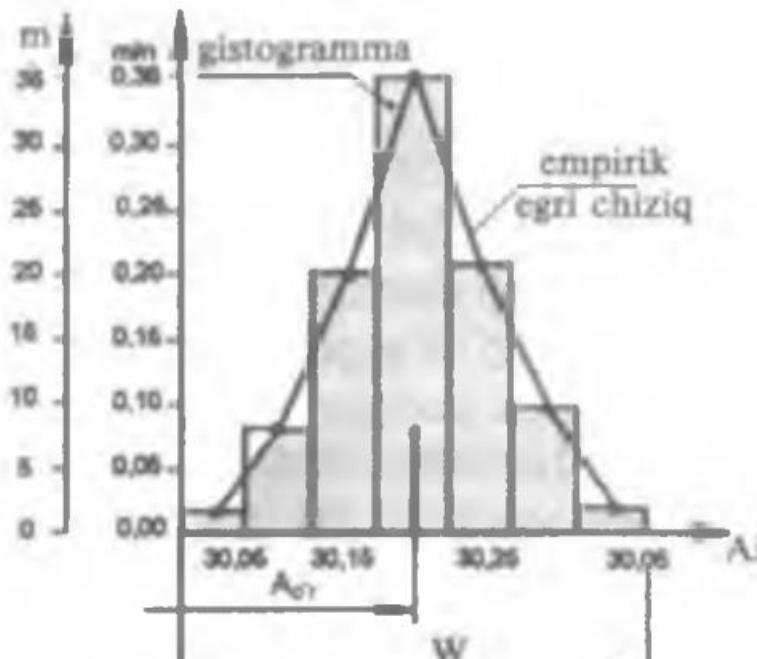
Masliina. mechanism. parts and their details in the technological process of assembly provide convenience for conditionally dividing into groups or collective units, organizing the assembly process. Before creating the machine and mechanical/machine assembly technology, it is desirable to draw up assembly technological schemes for the whole and parts of the system. That is why they are the first. is divided into aggregate units of second and n order. In the general assembly process, the assembly unit that is directly connected to the product is called the first-order assembly unit. Any unit that is part of a first-order unit is called a second-order unit, and so on. At the end of the n-unit, the unit is divided into only parts. In this case, the term itself is calculated as a cumulative unit of order 0.

(Professor V.M. Kovan's method of drawing up assembly technological schemes according to the method of V.M. Kovan) in order to draw up technological assembly schemes according to V. M. Kovan's style, each detail and part of the machine and mechanism is conditionally correct in the drawing It is defined by a rectangle and it is divided into three cells by rectangular lines.

(body, bolt, screw, etc.) is written; on the second (2) the sequence number on the assembly drawing or the detail inventory number is written; in the third (3) the number of the same similar cumulative unit is written in the cumulative drawing

Mass production is a production that involves the production of goods in large quantities, and provides continuous preparation or repair over a long period of time. Bin of the main characteristics of mass production. it is the long-term binding of one worker to perform one action. In mass production, the coupling coefficient of operations is close to 1. In addition, mass production has the following specific features: equipment placement, operations are arranged according to the sequence

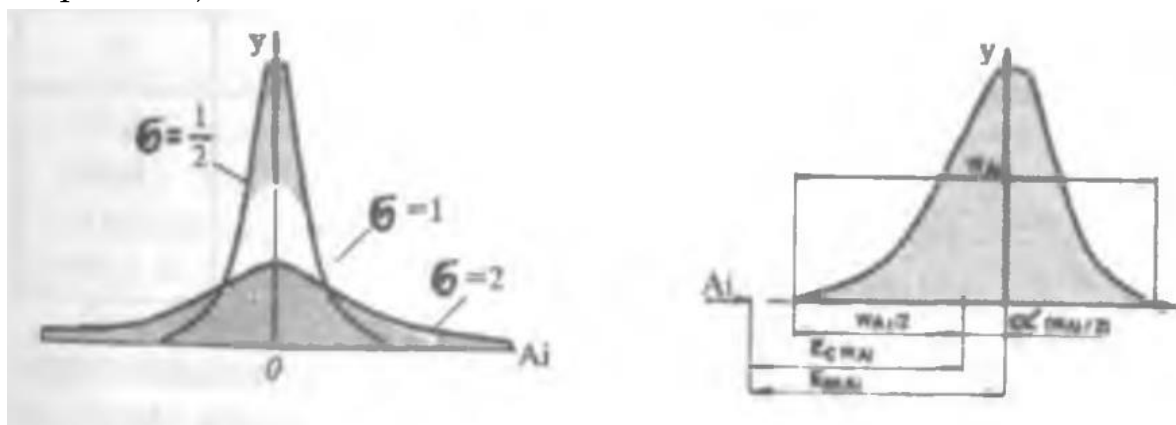
of execution; high performance equipment, special machines. kcskich tools and devices are used; transport devices and conveyors are used to move the carcasses along the flow lines; mechanization, automation of production, etc. The required dimensional accuracy of details is obtained by aeronautically tested machines. In mass production, the shape and size of the detail given in the working drawing are very close. It is prepared using high-yield harvesting methods.



Allowances are made for non-mechanical processing as required for processing units of the template. and uncultivated vuzas are often left as they are due to harvesting methods. The skills of workers will be much lower than in mass production. because it performs a single operation that is repeated over and over again, but in mass production, highly skilled workers, technical engineers and operators are often employed. The kcKMricity of the material is high ($Lt=0.85...0.95$). In mass production, technological documents are perfectly processed, and technical standards are considered null and applied to the production only after a separate review. 1.4.5. O

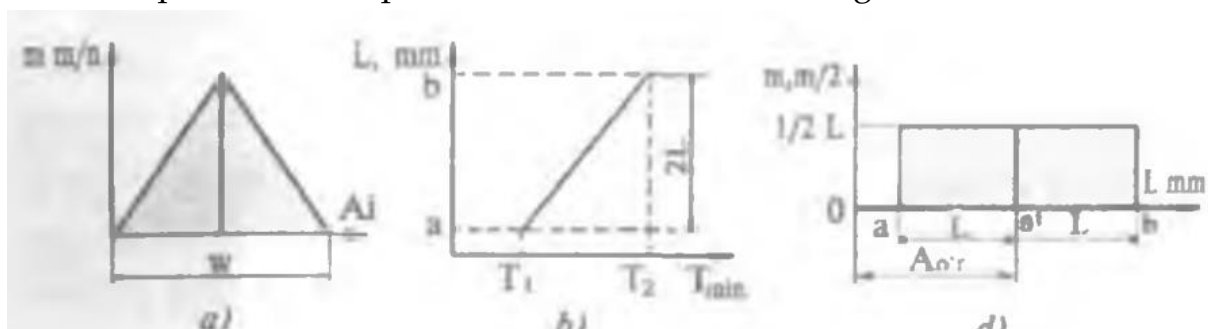
Forms of organization of work As we mentioned above, we mainly commented on two ways of organization of work: flow and non-flow. Accordingly. these principles directly depend on the type of production, organization of non-flow work is characteristic of individual and small series production. Flow Work organization method is used for the remaining other types of production, and it also includes the following: flow series, flow large-series and mass productions; direct flow-mass production; divided into mainstream productions. The most popular form of production organization is mass-flow production, that is,

technological processes are mainly carried out here in automatic lines and in automated sections and workshops. In direct mass production, machines and equipment are placed in the sequence of execution of actions according to the technological process march route. In the performance of operations, the body is used to transfer the body from one working place to another. The production rate of each workplace may not be the same as that of another workplace. In such Lshchi places, a reserve of animals called "/adel" is organized. In flow-mass production, state-of-the-art automatic conveyors are often used and automatic lines are organized. In such cases, the production cycle of this line is determined. It is said that bodies or parts are produced in a certain period of time called a production cycle, and its time is defined in minutes. The production rate is determined by the following formula; $T_{ich} = F_x \cdot m \cdot 60 / N$, min. In this case: F_x is the actual time fund of machine operation within the planned period (shift, day, month, quarter, year) in hours; N – production program for this period (number of parts or products), units; m – cm enalarson



(1 .2 .3).

Creating a general technological assembly scheme. A car for that. it is necessary to provide an assembly drawing drawn by the designer of the mechanism or part. For example. Director of the Tashkent Agricultural Plant

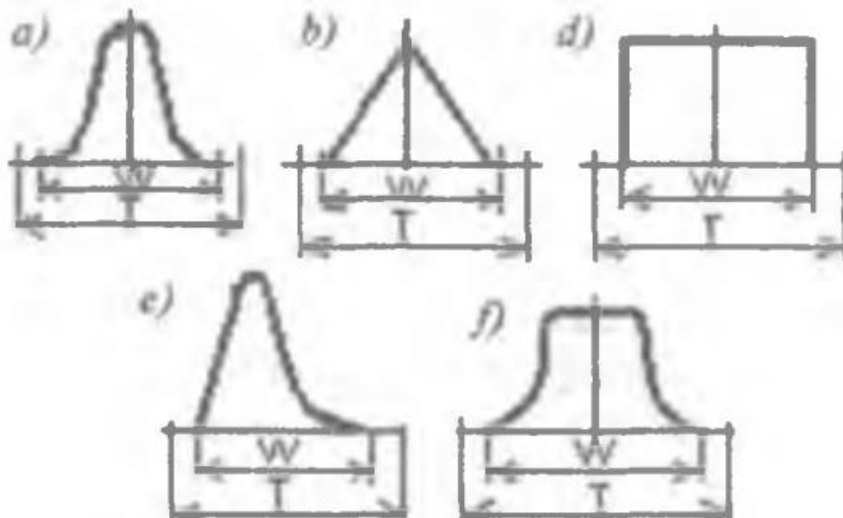


General view of the reductor assembled at the Tashknt aggregate plant (names of parts, assembly schemes. The technologist, in turn, carefully studies this finished product, the technical requirements of the parts and details are important for the

service tasks of machines and mechanisms. it is necessary to determine the sequence of assembly of details and parts and encourage drawing in the order in which they are placed in the scheme. A drawing or graph paper of a certain format is used to draw up the scheme. The middle and left edge of the paper a right rectangle (denoting the base detail) is drawn, and another right rectangle (denoting the assembled state of the machine, mechanism) is drawn to the right of it, and both the center of the rectangle is joined by a straight line. When creating a technological assembly diagram, in the order of sequential integration of the assembly unit into the base detail, individual details are a rectangular rectangle above the vertical line in the diagram, and first-order assembly units are placed below the vertical line. (nodes) rectangles are placed

A detail is a detail that unites all the remaining parts (collective unit) and the detail to itself. For example. base detail frame for the tractor; for engine - cylinder block; for reductor - lower cofusi etc. A complex is two or more specialized parts of a product, which are not combined with each other through the assembly process at the enterprise that manufactures this product, but are designed to perform an interrelated operational function.

For example, automatic Line, plot or shop-automatic, numerically controlled (SDB) machine tools, etc. A set consists of two or more products, which are a set of items that are not interconnected by the assembly process at a manufacturing plant, and are designed to perform a common operational task that has an auxiliary character. ladi For example, equipment, spare parts, measuring instruments, etc. An aggregate is a large unit that can perform its function in a product or independently. It has full interchangeability. A product assembled from aggregates is called agrcgath or modular. Products designed and manufactured on the basis of the Agrcgath (modular) principle will certainly have a high level of technical and economic indicators. Aggregate (module) products have convenience in operation and taste, and their assembly period is much shorter. The main indicator of the machine is its quality indicator. The quality indicator includes the indicators of precision, thoroughness, resource, endurance and longevity, which are interrelated. Durability refers to the ability of a product to maintain its integrity over time. The thoroughness is illustrated by his work to the point of corruption.



A

breakdown is a sudden loss of performance of a product. Workability refers to the ability (duration) of the product to work until it breaks down. The time until product failure (in hours) is the lifetime of the product, which is a random quantity. The permissible service life of the resource product is determined by hours. The resource is not random, on the contrary, it is the permissible working life of the product, which determines its durability. Product integrity is a general property that includes both unbroken performance and durability.

Durability refers to the property of being able to maintain the product's ability to work until it reaches its limit state. In this case, during the period of operation of the product, its performance is maintained on the basis of the technical service and repair system. The quality of the machine is determined by the system of efficiency, economic and technological indicators during the preparation, repair and operation period. Of these, bin is the volume of work. and it is said to determine the time to prepare the product by working at normal intensity. The duration of employment of machines or other equipment for the preparation of all details of the product is determined by the working time of the machines. The period of time from the beginning to the end of the product preparation or repair process is called the production cycle. Labor is the sum of all the time spent on manufacturing or repairing the machine or any of its parts. S

Individual production describes the production of the same product in a small volume, which, as a rule, is not reworked. The organization of the work is without a flow, and the processing of the bodies. the names are performed in sections organized by universal machines of the same category. These sections include the lathe section; including milling machines section and other types of machine

sections. Due to the fact that the number of production batches is not more than one to five. detahiing hammock bodies from rolled steel. It is obtained from hammering, and from pieces poured into a bowl without residue. A large amount of scrap is removed during the processing of such bodies into a detailed shape, and the coefficient of material use is very low ($k_m = 0.25-0.6$). The tools used are often universal and standard cutting tools are used. The qualification of the high. worker will be high. A finished product. The cost of parts and accessories is very

1.4.4. Serial production and its description Serial production refers to the production or repair of items, in batches and serially repeated in detail. To the volume of serial production, production of items or details. three types depending on complexity and weight. that is, a small series. It is divided into medium series and large series production. At the design stage of TJ, the type of production can only be roughly determined. It is easy to use the initial data in the design of detail preparation mechanical shops and sections. If the number of products produced in a year is known, roughly compare it with the numbers in the table for determining the types of production. the type of production of the given product is selected. Small series production mainly refers to the production of heavy machinery. close to solo production

The series of production and production can be obtained in a very long time, and the number will be very small. In addition to universal machines, programmable machines are also used. Lshchihr qualification will be as high as single. One of the main characteristics of serial production. it is considered that animals are brought to each workplace in batches and these batches of animals are processed on the machines adjusted. The method of organization of Islam can be flowing or non-flowing. In small series production, the same non-flow work organization method as in individual production is often used. In serial and large-scale productions, continuous flow work is organized. In serial production, mainly machines are placed in workshops according to the technological route of processing bodies. In addition to universal machines, special aggregate machines, SDB machines. semi-automatic machines and machines, processing brand/s. flexible production systems (M ICT), flexible automatic production (MAICh) and others are used. In addition to universal devices, special collapsible and collapsible and adjustable devices are used for other types of details. The material damping coefficient is around $A_m=0.60...0.85$. Standard and special cutting tools are used. Tanavors are often specially cast. It can be cold and hot stamped, pressure cast, cast in special molding machines, cast in shell molds, and prepared by other methods. The skill of the worker will be lower than if it were produced alone. Often skilled

adjusters work and adjust the machines to the main workers. Large-scale production is close to mass production in terms of production volume, and flow work is organized. machines are placed according to the technological route plan. Here, too, the skills of workers are low. most jobs involve performing one or more detailed manufacturing operations with long-term payback. Actions range from coupling coefficients.

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