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Payment arrangements DEPENDENT admission

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The method of calculating the dependent tolerance. These formulas. Given the method of calculation dependent admission and determine suitable and possible share of defective parts.

Dependent admission, suitable parts, the final marriage, Correctional marriage.

Formulation of the problem. The quality and efficiency of drafting units and mechanisms primarily depends on the accuracy of geometrical parameters influencing longevity. All components of machines can be divided by categories of eligibility for independent and dependent tolerances into two groups: suitable and unsuitable details. By Category suitability for independent parts tolerances can be as fit and unfit, while dependent tolerances shown in the diagram in Fig. 1. If suitable tolerances are independent parts in which deviations locations are within the boundaries of admission to the drawing. All other details are useless, and the lack of final. If suitable tolerances are independent parts in which deviations locations are the boundaries of the extended compared to shown in the drawings admission location, which is determined by the ratio of (1) and (2).

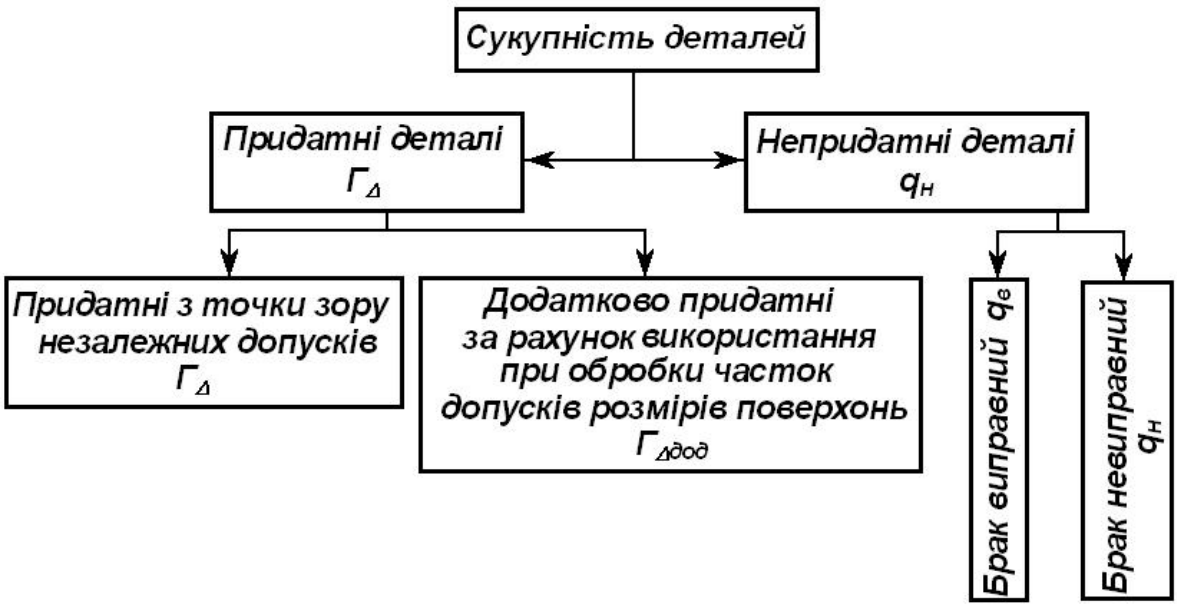

Fig. 1. Classification by Category parts life with dependent tolerances.

Analysis of recent research. When dependent admission linked to the size of both items under consideration, then:

$$\Delta_{зал} = \Delta + \frac{|Z_1| + |Z_2|}{2}, \quad (1)$$

where: $\Delta_{зал}$ - Limit deviation for each specific location details (in radial terms); Δ - Minimum value tolerances locations that affixed to the drawing radius expression (eg, alignment tolerances $\Delta = T_c / 2$) $|Z_1|$ i $|Z_2|$ - The size of the absolute values of deviations from the surfaces of coordinating traversed borders (the largest size limit shaft or smallest hole size limit).

When tolerances locations marked in diametrically expression, then, for example, with respect to alignment:

$$T_{сзал} = T_C + |Z_1| + |Z_2|, \quad (2)$$

where: $T_{сзал}$ - Alignment tolerance diametrically expression for specific details; T_c - Minimum alignment tolerance diametrically expression, which is affixed to the drawing.

At full size surfaces using tolerances that are coordinated when their dimensions correspond impassable boundaries, limit deviation position in the radius of expression is calculated by the formula:

$$\Delta_{зал.max} = \Delta + \frac{T_1 + T_2}{2}, \quad (3)$$

where: T_1 i T_2 - Size tolerances surfaces are coordinated.

When dependent tolerance associated with the actual size only rozhlyadayemoho or just basic element, then:

$$\Delta_{зал} = \Delta + \frac{|Z|}{2}. \quad (4)$$

where: $|Z|$ - The absolute value of the deviation of the size of the entrance boundary of the element which is connected dependent admission.

Results. Compensation abnormalities location deviations of sizes sizes surfaces that are coordinated, not only can occur automatically because of the relationship of chance variations location and size deviations, but deliberately, when such compensation is additionally used in the initial treatment nedovykorystani particle size tolerances for surface details. Getting Married in the dependent tolerances is divided into correctional and final. Correctional lack of details is where the absolute value of the deviation arrangement is in the range of values that

are defined as (1) and (3) (where admission depends linked to the size of both surfaces under consideration). Details of corrective marriage can be transferred to prisons by re-processing surfaces coordinating the boundaries of underutilization of particle sizes and tolerances approaching them into impassable boundaries (eg, re Turning holes without any special installation). In other words, correctional there are parts where the proportion of error location, which is beyond the boundaries marked on the drawing admission without offset used in the processing of particles tolerances of linear and angular dimensions, but compensation may be made deliberately without special installation by re-processing of parts size coordinating the boundaries of tolerance surfaces of these dimensions. Thus, the piece is translated into the category of eligible due touse size tolerances coordinating surfaces not by error location of these surfaces. The final at the lack of detail is dependent tolerances where appropriate tolerances sizes coordinating surfaces are not sufficient to compensate for complementing derogations location, that is, in such detail the location of the absolute value of the deviation exceeds the value determined by (4). The procedure for calculation of possible particles suitable and defective parts dependent on technological precision machining of surfaces by location and type of access. The method of calculation [2].

1. From the drawing details are determined by the size tolerances coordinating surfaces T, T1 and T2, which is connected dependent tolerance and tolerance location (or form): T - tolerance alignment, symmetry, intersection of the axes in terms diametrically; Tl– axis straightness tolerance surface of the product in terms diametrically; $T_{\perp}$ - Access the axis perpendicular to the plane surface of the product; $\pm\delta L$ - Limit the size of the deviation between the axes of the nominal value; Tp1, Tp2 - positional tolerances axes at diametrically terms.

2. Calculated constructive factor relative accuracy of the details (article):

- for details of admission alignment, symmetry, intersection of axes when dependent access that is associated with the actual size of the two elements in question, then:

$$\boldsymbol{P} = \frac{\boldsymbol{T_1} + \boldsymbol{T_2}}{\boldsymbol{T_C}}; \tag{5}$$

if dependent tolerance associated with the actual size of only one element (in question or base), then:

$$\boldsymbol{P} = \frac{\boldsymbol{T}}{\boldsymbol{T_C}}; \tag{6}$$

- for details of the tolerance of the distance between the axles symmetric surface given boundary size deviation between the axes of

the surfaces of the nominal value if dependent tolerance associated with the actual size of the two elements in question, then:

$$P = \frac{T_1 + T_2}{2\delta \cdot L}; \quad (7)$$

if dependent tolerance associated with the actual size of only one item (or considered basic), then:

$$P = \frac{T}{2\delta \cdot L}; \quad (8)$$

- for details, who asked positional location tolerances if dependent tolerance associated with the actual size of the two elements in question, then:

$$P = \frac{T_1 + T_2}{T_{И1} + T_{И2}}; \quad (9)$$

if dependent tolerance associated with the actual size of only one element, then:

$$P = \frac{T}{T_{И1} + T_{И2}}; \quad (10)$$

- for details of admission axis perpendicular to the plane of the surface:

$$P = \frac{T_1}{T_2}; \quad (11)$$

- for details of admission axis straightness surface:

$$P = \frac{T}{T_L}; \quad (12)$$

- zero coefficient dependent tolerances relative accuracy is not defined.

3. Determine the scattering field of technological error location (or forms) GOST 16467-70.

4. Calculated rate of technological precision machining parts on a surface that is equal to the pitch scattering error location (or shape) to the field of access:

- admission for alignment, symmetry, cross axes:

$$K_{T\Delta} = \frac{\omega}{0{,}5T_C}; \quad (13)$$

- admission by the distance between the axles surfaces caused marginal sized symmetrical deviation from the nominal value $\pm\delta L$:

$$K_{T\Delta} = \frac{\omega}{2\delta \cdot L}; \quad (14)$$

- for admission axis perpendicular to the plane of the surface:

$$K_{T\Delta} = \frac{\omega}{T_{\perp}}; \quad (15)$$

- by axis straightness tolerance surface:

$$K_{T\Delta} = \frac{\omega}{T_L}; \quad (16)$$

- by zero tolerance dependent alignment, symmetry, cross axes if dependent tolerance associated with the actual size of both elements. considered, then:

$$K_{T\Delta 0} = \frac{\omega}{TD + Td}; \quad (17)$$

if the dependent is related to actual admission of only one element, then:

$$K_{T\Delta 0} = \frac{\omega}{0,5T}; \quad (18)$$

- zero tolerance dependent on the distance between the axles if pozv'yazanyy admission depends on the actual size of the two elements, then:

$$K_{T\Delta 0} = \frac{\omega}{TD + Td}; \quad (19)$$

if the dependent is related to actual admission of only one element, then:

$$K_{T\Delta 0} = \frac{\omega}{T}; \quad (20)$$

- for zero tolerance dependent surface perpendicular to the axis of the plane, axis straightness surface:

$$K_{T\Delta} = \frac{\omega}{T} \quad (21)$$

5. Possible proportion of defective parts and fit tolerances dependent locations (or forms) not equal to zero, determined: by tolerances alignment, symmetry, perpendicular, crossing axes, straightness [2 Table. D 7 - D 10]; tolerances for dimensions, coordinating axes surfaces (distance between axles surfaces between the axis and plane surfaces)– [2 Table. D 11].

6. Possible particles and defective parts suitable for independent tolerances: tolerances for alignment, symmetry, perpendicular, crossing axes, straightness [2 Table. D 7 and D 15]; tolerances for dimensions, coordinating axes surfaces (distance between axles surfaces between the axis and plane surfaces) [2 Table. R 9, R 19].

Conclusion. The proposed method of calculating the dependent'll need to implement in practice dependent calculations admission and determine suitable and possible share of defective parts.

List of references

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Method of calculation is set out subordinate tolerances. Pryvedeny raschetnye the formula. This method calculations subordinate tolerances and definitions vozmozhnoy pryhodnyh valleys and defective parts.

Dependent admission, hodnye details, okonchatelnyy marriage, yspravytelnyy marriage.

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