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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 28252-2012

Hobs for pre-grinding gear

磨前齿轮滚刀

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Foreword Foreword

This standard is drafted according to the rules given in GB/T 1.1-2009. It was proposed by the China Machinery Industry Federation and is under the jurisdiction of the National Technical Committee on Cutting Tools of Standardization Administration of China (SAC/TC 91). The foreword also names the drafting organizations and the two main drafters.

1 Scope

This standard fixes the basic type and dimensions, the technical conditions and the basic requirements for marking and packaging of solid hobs for pre-grinding gears.

This standard applies to hobs of module 1 mm to 10 mm according to GB/T 1357.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1357 Modules of cylindrical gears for general and heavy engineering; GB/T 6132 Interchangeable dimensions of milling cutters and milling cutter arbors; GB/T 9943 High-speed tool steels.

3 Type and dimensions

3.1 The type and the dimensions of the hob follow Figure 1 and Table 1.

3.2 The hob is made with zero rake angle, single start and right-hand direction, and with straight gashes parallel to the axis. At the request of the user the hob may be made left-hand.

3.3 The diameter of the hob boss and its deviation are decided by the manufacturer; the dimension should be taken as large as possible.

3.4 The keyway dimensions of the hob and their deviations shall comply with GB/T 6132.

3.5 The calculated dimensions of the hob shall comply with Annex A, and the axial tooth-form dimensions of the hob shall comply with Annex B.

3.6 Example of designation: a left-hand pre-grinding gear hob of module m = 2.5 mm whose tooth-tip protuberance is of type II is designated by the product name followed by m2.5 II L and by GB/T 28252-2012.

Figure 1 is a drawing of the hob with the dimension symbols: the overall length L, the boss length a at each end, the outside diameter de, the bore diameter D and the number of gashes Z. Table 1, in millimetres, sets against the module series, given in a series I column and a series II column, the outside diameter de, the overall length L, the bore diameter D, the boss length a and the number of gashes Z. On the sheet available a large overprinted mark left by the digitiser covers the middle of Table 1, so that rows and columns cannot be paired with certainty throughout and the values are not reproduced here.

4 Technical conditions

4.1 The surface of the hob shall be free from cracks, burns and other defects that affect its performance in use.

4.2 The surface roughness of the hob follows Table 2. Table 2, in micrometres, fixes Ra 0.63 for the bore surface, Ra 0.63 for the end faces, Ra 1.25 for the outside cylinder of the boss, Ra 0.63 for the tooth face, Ra 0.63 for the tooth flanks, and Rz 3.2 for the tooth tip circle and the corner portions.

4.3 The deviation of the outside diameter of the hob is h15 and the deviation of the overall length is js15; the rest of the manufacturing accuracy follows Table 3. Table 3, in micrometres, gives for each inspection item a tolerance symbol and the permitted value for the four module ranges 1 to 2, over 2 to 3.5, over 3.5 to 6 and over 6 to 10.

Item 1 of Table 3 is the bore diameter deviation, tolerance symbol delta with subscript D, fixed as H6 for all four module ranges, with two conditions: the length of the bell mouth exceeding the tolerance on the bore surface shall be less than 25 % of the fitting length on each side, and the width of the portion exceeding the tolerance on each side of the keyway shall not be greater than half of the keyway width; and when the accuracy of the bore is checked, a reference mandrel of nominal bore diameter (GO end according to GB/T 1957) shall be able to pass through the bore.

Item 2 is the radial run-out of the boss, tolerance symbol delta with subscript d1r, permitted values 7, 8, 10 and 12 for the four module ranges. Item 3 is the axial run-out of the boss, tolerance symbol delta with subscript d1x, permitted values 6, 6, 8 and 10. Item 4 is the radial run-out of the cutting teeth, tolerance symbol delta with subscript der, defined on the drawing as the maximum difference of the distance from the tooth profile to the centre of

the bore within one turn of the hob, permitted values 40, 45, 53 and 65. Item 5 is the radiality of the tooth face, tolerance symbol delta with subscript fr, defined on the drawing as the distance between the two planes parallel to the theoretical face that contain the actual tooth face within the measuring range, permitted values 32, 36, 42 and 53.

Table 3 continues on the following sheet with item 6, the adjacent pitch deviation of the gashes, item 7, the maximum cumulative error of the gash pitch, and item 8, the parallelism of the tooth face to the bore axis, each of them with its own drawing and definition. On that sheet a large overprinted mark left by the digitiser lies across the table, and the permitted values of items 6 to 8 are not reproduced here.

Clause 5 of the standard, which the scope announces as covering marking and packaging, and Annexes A and B, fall beyond the last page available.