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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 21471-2008

**Machining allowances and tolerances for steel open die
forgings on hammer -- Shafts**
(English Translation)

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Foreword

This Standard revised GB/T 15826.6-1995 Machining Allowances and Tolerances for Steel Open Die Forgings on Hammer - Shaft without Steps, GB/T 15826.7-1995 Machining Allowances and Tolerances for Steel Open Die Forgings on Hammer - Shaft with Steps, GB/T

15826.8-1995 Machining Allowances and Tolerances for Steel Open Die Forgings on Hammer

- Single Throw Crankshaft, and GB/T 15826.9-1995 Machining Allowances and Tolerances for

Steel Open Die Forgings on Hammer - Forging without Machining. The major revised contents

are as follows.

--- Integrate GB/T 15826.6-1995, GB/T 15826.7-1995, GB/T 15826.8-1995, and GB/T 15826.9-1995 into one standard.

--- Add table of contents and foreword.

--- Add normative references.

--- Delete the calculation examples in Section 3.4 of GB/T 15826.6-1995, and its content is given as "Appendix A".

The Appendix A of this Standard is informative.

This Standard was proposed by China Machinery Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Forging of Standardization Administration of China.

Drafting organizations of this Standard. Shanghai Hudong Forging Factory; and Pinghu Chenren Meter Co., Ltd.

Chief drafting staffs of this Standard. Sun Changfen, and Dong Zhusheng.

The historical editions replaced by this Standard are as follows.

--- GB/T 15826.6-1995;

--- GB/T 15826.7-1995;

--- GB/T 15826.8-1995;

--- GB/T 15826.9-1995.

Machining Allowances and Tolerances for Steel Open Die

Forgings on Hammer - Shafts

1 Scope

This Standard specifies the machining allowances and tolerances of open die forgings such as

shafts without steps, shafts with steps, and single throw crankshaft, as well as the allowable limit deviations of forging without machining.

This Standard applies to open die forgings of carbon steel and alloy steel with a carbon content

not exceeding 0.9% and a total content of other alloy components not exceeding 4%.

For open die forgings that exceed the range specified in this Standard, the allowances and tolerances shall be determined by negotiation between the supplier and the purchaser.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced

document

applies.

GB/T 21469 Machining allowances and tolerances for steel open die forgings on hammer

- General requirement

JB/T 9179.2 Machining allowance and tolerance of open die forgings on hydraulic press -

Round shaft, square shaft and rectangular cross-section

JB/T 9179.3 Machining allowance and tolerance of open die forgings on hydraulic press -

Stepped shaft

3.1 The dimensions of open die forgings of the shafts without steps with round, square,

hexagonal, octagonal or rectangular ($B/H \leq 5$) cross-section shall be $L > 2.5D$ (or A, B, S).

3.2 The machining allowance and tolerance of open die forgings of the shafts without steps

shall comply with the provisions of Figure 1 and Table 1.

3.3 General description

3.3.1

When the ratio of the length of the two sides of the rectangular cross-section shaft without step $B/H > 2.5$, the allowance α of H increases by 20%.

3.3.3 The rest shall comply with the provisions of GB/T 21469.

3.3.4 For the rectangular cross-section shaft without step, the larger side B and the length L are

used to find α in Table 1 to determine the allowances of L and B . The allowance α of H is

determined by looking up the length L and the calculated value $H_p = (B+H)/2$ in Table 1.

3.3.5 For the determination of the forging size of rectangular cross-section shaft without step,

Unit. mm

4 Shafts with Steps

4.1

The ratio of the total length L of open die forging of shaft with step with the circular cross-section to the maximum step diameter D (L/D) shall be greater than 2.5.

4.2 The machining allowance and tolerance of open die forgings of shafts with steps shall

comply with the provisions of Figure 2 and Table 2.

4.3 General description

4.3.1

The allowance on the diameter and length of each step is determined according to the Unit. mm

4.3.2 When the ratio of the total length L to the diameter D_i on certain position of the part is

greater than 20, the allowance of the diameter D_i shall be increased by 30%.

4.3.3 When the ratio of two adjacent diameters of a part is greater than 2.5, the diameter

allowance of one part can be increased by 20% according to the principle of saving materials.

4.3.4 Whether the steps and L gear are forged or not shall be determined in accordance with

4.4.

4.3.5 Whether the end flanges and intermediate flanges are forged or not shall be determined in

accordance with 4.5.

4.4.1 The forging conditions of steps or L gear on forgings shall comply with the provisions of

Figure 3 and Table 3.