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**Specification for collapsible spacer used in automotive drive
head assembly**

汽车主减速器总成可压缩弹性隔套技术条件

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Specification for collapsible spacer used in automotive drive head assembly

1 Scope

1.1 This standard specifies the technical requirements and testing methods for the collapsible spacer used in automotive drive head assembly.

1.2 This standard is applicable to spacers used in automotive drive head assembly, which have a total mass not greater than 10000 kg.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 699-2015 Quality carbon structural steels

GB/T 1958 Geometrical product specifications (GPS) - Geometrical tolerance - Verification

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1

Collapsible spacer

Collapsible spacers whose middle part adopt a drum-shaped structure, which has elastic deformation characteristics AND is used in the plastic deformation area.

In this standard, unless there is a special statement, the collapsible spacer is referred to as the spacer for short.

3.2

Pressure-delta characteristic curve

The relationship between the load (P) and the deformation (δ), when the spacer is compressed under a certain load, is called mechanical characteristic; the curve (P - δ) formed by it is called the pressure-delta characteristic curve.

3.3

Pressure-delta characteristic figure

The range, which is allowed by the pressure-delta characteristic curve of the spacer, is called pressure-delta characteristic figure.

3.4

Springback value (T)

The difference -- BETWEEN the height of the spacer under compression deformation AND the height after the pressure is released -- is called the springback.

4 Technical requirements

4.1 Materials

4.1.1 The material of the spacer is recommended to use high-quality carbon steel 10, 20, in accordance with the provisions of GB/T 699-2015.

4.1.2 It is allowed to use other materials, that can meet the requirements of this standard.

4.2 Dimensions and tolerances

4.2.1 Refer to Figure 1 for the schematic diagram of spacer type.

5 Detection method

5.1 Geometric tolerance

Geometric tolerances shall be tested in accordance with the provisions of GB/T 1958.

5.2 Performance test

5.2.1 Test requirements

5.2.1.1 Measurement temperature: Measured at room temperature.

5.2.1.2 Pressure testing machine: The pressure range of the equipment is not greater than 30000 kg; the error of the load measurement indication value shall not be greater than $\pm 1\%$.

5.2.1.3 The measurement error of equipment size shall not be greater than ± 0.01 mm.

5.2.1.4 Compression speed: 0.5 ~ 1.5 mm/min.

5.2.2 Spacer compression test

As shown in Figure 3, place the spacer at the center of the workbench of the pressure testing machine. Load the spacer, until the compression deformation is greater than δ_2 . Record the load P , corresponding to different compressive deformation δ , including not less than 10 measurement points; meanwhile it shall include the compressive deformation value at $P_{\min}$ and the actual load value under the δ_2 compressive deformation. Draw the pressure-delta characteristic curve of the spacer (see Figure 4).

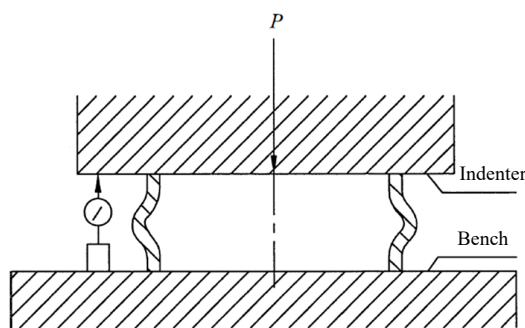


Figure 3 -- Schematic diagram of spacer compression

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