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

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Rubber diaphragms for brake chamber in automobile

汽车制动气室橡胶隔膜

(English Translation)

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Foreword

3.4,3.5,3.6,3.7,3.8 this standard is mandatory, the rest are recommended.

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

The standard proposed by China Petroleum and Chemical Industry Association.

This standard by the National Rubber and rubber products sealing products
Standardization Technical Committee Technical Committee (SAC/TC35/SC3) Centralized.

This standard was drafted. Guizhou public Rubber Co., Ningboqiaoshi Rubber Co., Ltd.,
Anhui Ding seals Co., Ltd., Qingdao Beihai Sealing Technology Co., Ltd. Northwest Rubber
Plastic Research and Design Institute, Zhuzhou Times New Material Technology Co., Ltd.,
Chongqing Cafu Steering Automotive Brake System Co., Ltd.

1 Scope

This standard specifies the automobile brake chamber rubber diaphragm (hereinafter referred to as the diaphragm) requirements, test methods, inspection rules and signs, packaging, transportation Transport and storage.

This standard applies to automobile brake chamber with a rubber septum.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 528 Determination of vulcanized rubber or thermoplastic rubber tensile stress-strain

properties GB/T 531.1 vulcanized rubber or thermoplastic rubber hardness test pushed Part 1. Shore hardness method (Shore hardness) Determination of GB/T 532 vulcanized rubber or thermoplastic rubber and fabric adhesive strength GB/T 1682 Determination of vulcanized rubber low temperature brittleness Single Specimen GB/T 2828.1 Sampling procedures for inspection - Part 1. by acceptance quality limit (AQL) retrieval batch inspection sampling plan GB/T 2941 rubber physical test method for preparing and conditioning General Procedure GB/T 3512 vulcanized rubber or thermoplastic rubber hot air and heat accelerated aging test GB/T 5721 rubber seal products logo, packaging, transportation and storage of general provisions GB/T 7759 vulcanized rubber, thermoplastic rubber at room temperature, high and low temperature compression set determination QC/T 790-2007 brake chamber performance requirements and test methods of

3.1 Physical properties of vulcanized rubber

Physical properties of vulcanized rubber should meet the requirements in Table 1.

Table 1 Physical properties of vulcanized rubber

No. Physical Performance

1 Hardness (Shore A) 50 ± 5 60 ± 5 68 ± 5 Tensile strength/MPa minimum 121 215

3 Elongation at break /% min 350 350 400

5 Brittle temperature/°C highest -45-45-45

A hot air aging

Change in hardness (Shore A) Tensile strength change rate /% maximum Elongation at break change rate /% maximum-5 To 10-25-30-5 To 10-25-30 0-5-15-25

Table 1 (continued)

No. Physical Performance 7 and the adhesive strength of the vulcanized rubber fabric/(kN/m) Minimum 668 for a material hardness of 50 ± 5 and 60 ± 5 , the hot air aging conditions of 70 °C x 72h, the hardness of 68 ± 5 material, hot air aging strip Member of 80 °C x 72h.

3.2 Reinforcements

Manufacturing membrane materials used comply with the relevant standard requirements of customers.

3.3 diaphragm size

Membrane is shown in Figure 1, the separator should be sized in accordance with Table 2 or drawings of design requirements.

1 a schematic diagram of the diaphragm

Table 2 diaphragm dimensions and tolerances in millimeters

Type phiD (outside diameter) H (full height) t (bottom thickness) TYPE09 127.8 ± 1.5 34.4 ± 0.7 3.2 ± 0.3 TYPE12 139.0 ± 1.5 37.0 ± 0.7 3.0 ± 0.3 TYPE14 147.0 ± 1.5 37.0 ± 0.7 3.0 ± 0.3 TYPE16 158.0 ± 1.5 34.4 ± 0.7 3.2 ± 0.3 TYPE20 169.7 ± 1.5 34.4 ± 0.7 3.2 ± 0.3 TYPE24 178.0 ± 1.5 40.0 ± 0.7 4.0 ± 0.3 TYPE28 188.5 ± 1.5 39.5 ± 0.7 3.2 ± 0.3 TYPE30 201.0 ± 1.5 39.5 ± 0.7 3.0 ± 0.3 TYPE36 221.0 ± 1.5 43.0 ± 0.7 3.6 ± 0.3 3.4 appearance quality diaphragm Appearance quality should be consistent with the provisions of the diaphragm in Table 3.

Table 3 Appearance Quality diaphragm

No. Name Index defect 1 mold marks are allowed, but the unevenness of not more than 0.3mm, grow up to 1.5mm 2 bubble diameter of not more than 2mm, no more than 0.5mm deep bubbles, allowed many to 2 3 impurity has not allowed 4 missing glue grow up to 2mm, width is not more than 1.5mm, depth of not more than 0.5mm, allowed many to 2 5 fabric fracture has not allowed 6 trimming deep damage is not greater than 1mm, a total length of no more than 1/6 of the perimeter 7 edge burrs projecting high not permit more than 1mm

8 Flow marks (including water ripples and minor pitting) are allowed, but not allowed to have split 9 surrounding the lack of cloth have not allowed the cumulative total number of 10 defective item No. 2,4 defects are not allowed more than four 3.5 diaphragm pressure resistance After the pressure test, the membrane should be intact, no damage, and the sealing performance should meet the QC/T 790-2007 requirements of 5.1.

3.6 cryogenic sealing septum Low temperature sealing performance should meet the QC/T 790-2007 requirements of 5.4.

3.7 cryogenic operating characteristics of the membrane Diaphragm after the test should not have visible cracks and damage. And shall meet the QC/T 790-2007 requirements of 5.7.

3.8 diaphragm life

Diaphragm life of 100 million times (400,000 times at room temperature; various high and low temperature 100,000 times; and then at room temperature 400,000 times), after testing the product in good condition, no damage.

Test Method 4

4.1 Preparation of vulcanized rubber samples conducted in accordance with GB/T 2941's.

4.2 hardness according to GB/T 531.1 requirements.

4.3 tensile strength, elongation at break were by GB/T 528 requirements.

4.4 Compression set according to the provisions of GB/T 7759 progresses, type B samples.

4.5 hot air aging according to the provisions of GB/T 3512 will be.

4.6 brittleness temperature according to the provisions of GB/T 1682 will be.

4.7 adhesive strength of the vulcanized rubber and fabric conducted in accordance with GB/T 532's.

4.8 diaphragm size measurement according to the provisions of GB/T 2941 will be.

4.9 appearance quality diaphragm visually and indexing is 0.02mm gage measurements.

Diaphragm pressure resistance was 4.10 according to the provisions in 6.10.1.2 QC/T 790-2007.

4.11 low temperature sealing performance diaphragm conducted in accordance with QC/T 790-2007 in 6.5.

Low temperature characteristics 4.12 diaphragm conducted in accordance with QC/T 790-2007 in 6.8.

4.13 diaphragm life test conducted according to the provisions of Appendix A.

5 Inspection Rules

5.1

Continuous production of the same compounds in not more than 5000kg batch.

5.2

In the same conditions, continuous production and delivery of the first test of its kind, with product specifications to no more than 10,000 batch.

The physical properties of the vulcanized rubber test should be 5.3 per roll rubber compound random number required, sample preparation conditions prescribed, according to

Table 1 1 to 3 and Item 7 factory inspection; Table 1, item 4 and item 6 test once a month.

5.4

Unless otherwise specified, each batch separator size according to the GB/T 2828.1 general test level II, AQL sampling is 4.0 test.

5.5

diaphragm should look checking each item.

5.6

diaphragm pressure resistance, low temperature sealing performance, low temperature performance and life test at least once every six months.