

KES

Test Method of Brake Reserve Hose

KES T – L172

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1. Scope of Application

This standard shall regulate performance and material (Property of hose hereinafter) of a reserve hose, which is attached to a brake system. In addition, this standard shall regulate the reserve hose, attached to a clutch system.

Remark : Define the reserve hose as a hose (Straight and bent pipe) that connects a route between a fluid tank and a cylinder.

2. Constitution

Constitution of the hose is a constitution of blaid cover outside a rubber layer. In addition, see the following for a reference of sizes of the outer layer blaid and the hose.

(1) Outer layer blaid : Number of spheres 24 or 32

Cotton yarn 20# (3 pieces × 3 pieces of total strings)

Bias angle 45 ± 5 °

(2) Size and allowance of hose

Unit : mm

Inner diameter of hose		Thickness of hose		Outer diameter of nozzle
Standard size	Allowance	Standard size	Allowance	
6	± 0.3	3.5	± 0.5	8
9	± 0.4	4		11
12	± 0.5			14

- Remark**
1. Inner diameter of hose applies to the straight part.
 2. Outer diameter is the straight part, which excludes bulges or spures.
 3. Thickness includes the blaid cover.

3. Property

Property of the hose has the material number R-CE 710-Y131, and it should suit to regulations in 4 and 5 according to the performance of the hose and the physical performance of the rubber material.

4. Performance

Test the performance of the hose according to the test method 7.1.1 ~ 7.1.7, and the performance should suit the regulations in Table 1.

Table 1

Test items (Test conditions)		Standard value	Test method
Inner Pressure	Water pressure (6 kgf / cm ² × 1 min)	No abnormalities such as leakage, partial swelling, etc.	7.1.1 (1)
	Breakage kgf / cm ²	More than 15	7.1.1 (2)
	Buoyant pressure Rate of change of outer diameter % (-300 mmHg × 1 min)	Within -20	7.1.1 (3)
Rate of change of shape (Inner diameter, outer diameter, length) % [120 °C (Brake fluid BF 25) × 70 h]		Within ±2	7.1.2
Bendability (Measuring of amount of deformation of bent hose)		Table 3	7.1.3
Aging	After treating at 120 ± 2 °C × 24 h, Bend 180 °, and 120 ± 2 °C × 1 h	No abnormalities such as outbreak of cracks, etc.	7.1.4
Stress cracking resistance [After treating at 120 ± 2 °C × 24 h, 120 °C (Brake fluid BF 25) × 5 h]			7.1.5
Cold resistance (-40 ± 2 °C)			7.1.6
Ozone resistance (50 ± 5 pphm × 40 ± 2 °C × 72 h)			7.1.7

5. Physical Performance

Test the physical performance of the rubber material of the hose according to the test methods in 7.2.1 ~ 7.2.11, and the physical performance should suit the regulations in Table 2.

Table 2

Test items (Test conditions)		Standard value	Test method
Hardness (JIS Spring type) HS		70 ± 5	7.2.2
Tensile strength kgf / cm ²		More than 100	7.2.3
Strain rate %		More than 250	
Tearing strength kgf / cm		More than 25	7.2.4
Heat resistance (120 °C × 70 h)	Change of hardness HS	-5 ~ +15	7.2.5
	Rage of change of tensile strength %	-30 ~ +30	
	Rate of change of strain rate %	Within -50	
Brake fluid resistance [Brake fluid BF 25 120 °C × 70 h]	Change of hardness HS	-15 ~ +15	7.2.6
	Rage of change of tensile strength %	-30 ~ +30	
	Rate of change of strain rate %	Within -50	
	Rage of change of tearing strength %	Within -30	
	Rate of volume change %	-10 ~ +15	
Swelling of piston cup { Cap I' / SH SBR Brake fluid BF 25 120 °C × 70 h}	Change of outer diameter mm	0.15 ~ 1.00	7.2.7
	Change of hardness HS	-10 ~ 0	
	Appearance	No abnormalities such as partial swelling, change, etc.	
Permanent compressive deformation (120 °C × 70 h) %		Within 80	7.2.8
Decreased amount of extraction %		Less than 15	7.2.9
Glass sulfur %		Less than + 0.1	7.2.10
Amount of sediment V %	{ Brake fluid BF 25 80 °C × 300 h}	Less than + 1	7.2.11
Corrosion of copper plate mg / cm ²		-0.1 ~ +0.1	

- Remark 1.** Refer to regulations in KES B-L006 (Rubber material) for quality of material.
2. Use the brake fluid, which suits the regulations in TES K 211.