

KES

Test Method of Fuel Resistance Rubber Hose

KES T – L154

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Additional Rule

1. Scope of Application

This standard shall regulate parts (Fuel resistance rubber parts material hereinafter) for a system of fuel (Gasoline, diesel, etc.) hoses in cars and vacuum system.

Remark : This regulates the rubber parts, which include a reinforced layer such as cotton yarn, etc. However, it excludes rubber hoses for LPG fuel.

2. Kinds and Construction

Table 1 shows the kinds and the construction of the fuel resistance rubber parts material.

Table 1

Kinds	Material number	Construction	Standard for application
1 st kind	R-BG607-Y111	Single layer hose	In a case that double or triple construction cannot be used at where the environment is somewhat feeble, and the fuel and fuel vapor meet
2 nd kind	R-BG710-Y113	Triple layer hose of inner rubber, reinforced material and outer rubber	Place where it is always contacting the fuel and the fuel vapor, that the environment is harsh
3 rd kind	R-BG607-Y114	Valve or forming packing that includes a single layer or a reinforced layer	Place where it is always contacting the fuel and the fuel vapor

3. Quality

Table 2 shows the quality of the fuel resistance rubber parts material.

Table 2

Test items		Standard value				Testing method
		1 st kind	2 nd kind		4 th kind	
			Inner rubber	Outer rubber		
Hardness (JIS spring style) (Hs)		60 ± 5	70 ± 5	60 ± 5	60 ± 5	5.1.2
Tensile strength (kg / cm ²)		More than 70	More than 100	More than 70	More than 70	5.1.3
Strain rate (%)		More than 250	More than 250	More than 250	More than 250	5.1.4
Heat resistance 100°C×70h (However, outer rubber is 120°C×70h)	Change of hardness (Hs)	0 ~ 15	-5 ~ 15	0 ~ 15	0 ~ 15	5.1.5
	Rate of change of tensile strength (%)	-25 ~ 30	-25 ~ 30	-30 ~ 30	-25 ~ 30	
	Rate of change of strain rate (%)	Within -40	Within -40	Within -50	Within -40	
Fuel resistance (testing fuel °C) 30 °C × 70 h (However, rate of volume change is 30 °C × 22 h)	Change of hardness (Hs)	-40 ~ 0	-40 ~ 0	---	-40 ~ 0	5.1.6
	Rate of change of tensile strength (%)	-50 ~ 30	-50 ~ 30	---	-50 ~ 30	
	Rate of change of strain rate (%)	Within -50	Within -50	---	Within -50	
	Rate of volume change (%)	0 ~ 35	0 ~ 35	---	0 ~ 35	
Oil resistance (Testing oil No. 3) 100 °C × 70 h	Rate of change of tensile strength (%)	Within -40	Within -40	Within -50	Within -40	5.1.7
	Rate of change of strain rate (%)	Within -40	Within -40	Within -40	Within -40	
	Rate of volume change (%)	-5 ~ 25	-5 ~ 25	0~100	-5 ~ 25	
Adhesive-ability (Exfoliation speed 25.0 ± 1.5 mm / min) kg / cm		---	More than 1.1		---	5.1.8
Permanent compressive deformation (100 ± 1 °C × 70 h) %		---			Within 50	5.1.9
Cold resistance -40 ± 2 °C (However, 4 th kind is 20 ± 2 °C)		No outbreak of cracks, etc.				5.1.10
Ozone resistance 100 ± 5 pphm × 40 ± 2 °C × 72 h (However, 4 th kind is 50 ± 5 pphm × 40 ± 2 °C × 48 h)		No outbreak of cracks, etc.				5.1.11

- Remark** 1. Refer to the standard of KES B-L005 (Rubber material) for basic quality of the material.
2. It is possible to instruct to change standard values, add test items, etc. for quality, if necessary.