

1004. 4. 6

Ventilator Assembly

KES

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1. Purpose

This Standard aims at securing proper quality by standardizing specifications.

Remark: This standard and the drawing communicate together our requirements.

2. Scope of Application

This standard specifies the ventilator assembly for automobiles (hereinafter referred to as the "ventilator").

3. Report of Evaluation Result

The quality evaluation results of each stage from development to mass production shall be submitted to Kia according to the Appendix.

4. Definition of Terminology

(1) Noise

Unexpected noise not produced in a static condition, but given rise to when certain external force, for instance vibration, is given to parts.

(2) Flap

Plate which moves by lever or dial, and cuts off air flow.

(3) Lever

Bar which moves the flap.

(4) Knob

Handle placed at the end of the lever.

(5) Dial

Fan-shaped or semicircular part molding with one-piece which moves flap.

(6) Solvent crack

Production of cracks in the resin by organic solvents, types of oil, or plasticizers included in the material.

(7) Cavity

Depression in the surface.

(8) Weld

Line occurring from resin run to the border.

(9) Flash

Spotted pattern appearing on resin surface.

(10) Flow mark

Remainder of resin run appearing on resin surface.

(11) Dynamic pressure type

Type of ventilator taking in open air directly.

(12) Static pressure type

Type of ventilator in which pressure does not act directly on ventilator.

(13) Ventilator in open position

Condition for open air to be able to flow in.

(14) Ventilator in closed position

Condition for open air to be shut off.

(15) Ventilator assembly

Assembly including the lever, or the flap and the dial which moves flap; and the duct able to shut off the air flow by moving the flap.

But, it excludes the lever parts and the adjoining duct.

(16) Boost seal type

Ventilator which has a mechanism shutting off the air flow in the boost duct, and does not have open air intake function.

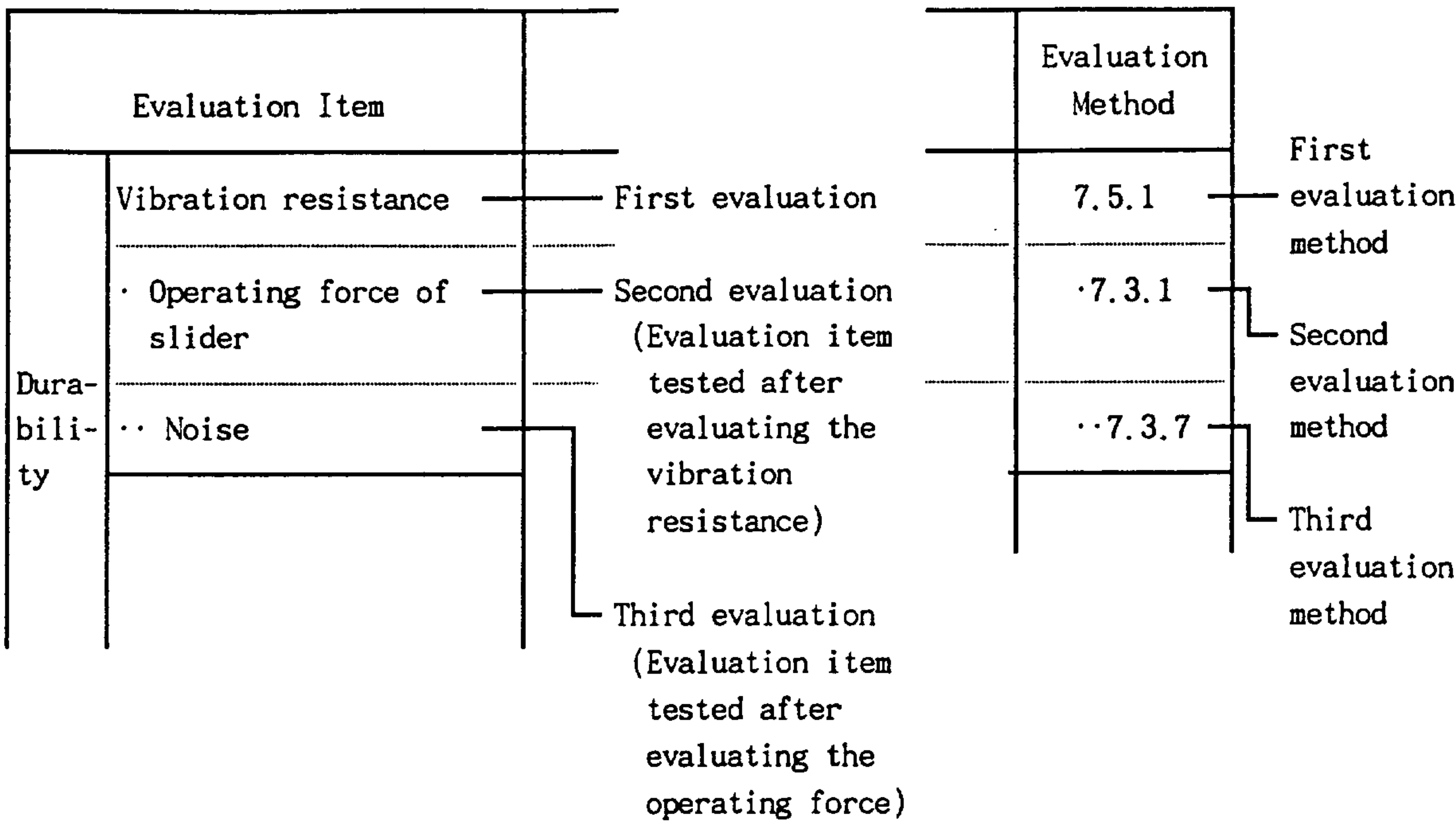
5. Specifications Indicated in Drawings

- (1) The part color, and whether that is a paint color or material color is indicated in the part color item.
- (2) The depth of the grain, scope and type of grain
- (3) Spec code required in KES D-G008.
- (4) Lever or dial operating angle
- (5) Whether it is dynamic pressure type, static pressure type or boost type is indicated.
- (6) The evaluation item number which must be evaluated by the difference of type.
- (7) Urethane plate thickness

6. Evaluation Standard

The evaluation standard of the ventilator shall conform to Table 1.

Remark 1. The way of reading evaluation items and methods in Table 1 shall conform to the following example.



Remark 2. The quality rank shall be represented by A, AR, B or C.
The definitions shall conform to KMS Q410001 (Determination and Procedure of Quality Ranking).

Table 1

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Seal-ability	Static pressure type	Leak amount shall be 1.7 m³ /h max. No noise of leak wind shall occur.	B	7.2
	Dynamic pressure type			
	Boost type			
Operating feeling	Lever or dial operating force	0.5 ± 0.2 kgf {4.9 ± 1.96N}	B	7.3.1
	Lever or dial looseness	1.0 mm max.	B	7.3.2
	Lever or dial stiffness	5.0 mm max.		

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Noise		No noises shall occur.	B	7.4
Knob lever assembly easiness	Knob or lever inserting force	3 kgf {29.4N} max.	B	7.5.1
	Knob or lever removal force	20±5℃ 5 ⁺² ₀ kgf {49 ^{+19.6} ₀ N} 80±5℃ 2 ⁺² ₀ kgf {19.6 ^{+19.6} ₀ N}	B	7.5.2
Durability	Operating durability	No damage to lever or dial and case. No disconnections to dial, or flap and lever. No lever or dial operating defects.	B	7.6
	• Noise during operating durability evaluation	No noises shall occur.	B	• 7.4
	• Sealability after operating durability evaluation	Leak amount shall be 1.7 m³ /h max. No noise of leak wind shall occur.	B	• 7.2
	• Static pressure type			
	• Dynamic pressure type			
	• Boost type	0.5 ± 0.2 kgf {4.9 ± 1.96 N}	B	• 7.3.1
	• Lever or dial operating force after operating durability evaluation			
	• Lever or dial looseness after operating durability evaluation	1.0 mm max.	B	• 7.3.2
	• Lever or dial stiffness after operating durability evaluation	5.0 mm max.		

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Durability	• Noise after operating durability evaluation	No noises shall occur.	B	• 7.4
Vibration resistance	Slipout, damage, looseness, cracks and operating defects	No slipouts or damage to assembly parts. No loose or disconnected screws, etc. No operating defects to lever or dial.	B	7.7
	• Sealability after vibration resistance evaluation	Leak amount shall be 1.7 m ³ /h. No noise of leak wind shall occur.	B	• 7.2
	• Static pressure type			
	• Dynamic pressure type			
	• Boost type	0.5 ± 0.2 kgf {4.9 ± 1.96 N}	B	• 7.3.1
	• Lever or dial operating force after vibration resistance evaluation			
	• Lever or dial looseness after vibration resistance evaluation	1.0 mm max.	B	• 7.3.2
	• Lever or dial stiffness after vibration resistance evaluation	5.0 mm max.		
	• Noise after vibration resistance evaluation	No noises shall occur.	B	• 7.4

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Appearance	Burrs, cavities	To satisfy the minimum acceptable sample.	C	Visual check
	Parting edge			
	Surface undulations			
	Weld mark			
	Flash, flow mark			
	Paint color	To satisfy paint color shown in drawings and color grain standard plate supplied by Kia.	C	Visual check (KS A 0065)
	Painting	To satisfy TA2 in KES B-R001	C	KES T-M010
	Material color	To satisfy color shown in drawings and color grain standard plate supplied by Kia.	C	Visual check (KS A 0065)
Environmental resistance	Grain	To satisfy grain type, grain scope, grain depth shown in drawing and color grain standard plate supplied by Kia.	C	Visual check (KS A 0065)
	Short term heat resistance	Indicated in drawings.	B	KES D-G008
	Long term heat resistance			
	Cold resistance			
	Thermal shock resistance			
	Chemical resistance	To satisfy Cr-I.0 in KES D-G008		
	Light resistance	Indicated in drawings.		
	Flame retardancy	To satisfy KES C-H001	AR	KES C-H001

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Environmental resistance	• Sealability after environmental resistance evaluation	Leak amount shall be 1.7 m ³ /h max. No noise of leak wind shall occur.	B	• 7.2
	• Static pressure type			
	• Dynamic pressure type			
	• Boost type			
	• Lever or dial operating force after environmental resistance evaluation	0.5 ± 0.2 kgf {4.9 ± 1.96 N}	B	• 7.3.1
	• Lever or dial looseness after environmental resistance evaluation	1.0 mm max.	B	• 7.3.2
	• Lever or dial stiffness after environmental resistance evaluation	5.0 mm max.	B	• 7.4
	• Noise after environmental resistance evaluation	No noises shall occur.		
Special environmental characteristics	Resistance to solvent cracks	No cracks shall occur.	B	7.8

7. Evaluation Method

7.1 Common evaluation condition

7.1.1 Standard atmospheric condition for testing

Unless otherwise specified, normal temperature and normal humidity that is class 5 of 20°C $20 \pm 5^\circ\text{C}$) and class 20 of 65% ($65 \pm 20\%$) respectively specified in KS A 0006 shall be applied.

7.1.2 Type of test sample

Unless otherwise specified, the test sample shall be joining parts indicated in drawings.

7.1.3 Test sample installation

The test sample shall be, unless otherwise specified, on a test rack or holder under the same condition as with a vehicle.

7.1.4 Test sample condition

The test sample having passed 24 hours or more after its manufacture shall be conditioned as a rule. Unless otherwise specified, the test shall be carried out after the test sample is left for one hour or more in the standard atmospheric condition prior to the test. In case the temperature is specified, however, the test shall be carried out after the test sample is left for one hour or more at the specified temperature.

7.1.5 Installing posture at test condition

Front and rear, right and left, and horizontal are indicated in drawings.

7.2 Sealability evaluation test

- (a) Make the test apparatus as in Fig. 1, referring to the test apparatus stipulated in 4.1 Fig. 4, of KS B 6311 "Testing Methods for Turbo-Fans and Blowers."