

KES

Gray Paint Workability Evaluation Standard

KES S – S601B

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1. Scope of Application

This shall be applied to workability test and evaluation of gray and black paint used in out paint factory.

The following table shall indicate paint type tested.

Table 1

Paint type classification	Paint color	Usage	Remark
Gray paint	· Gray · Color gray	· General outer panel · Inner panel	The same type paint
Black paint	· 84 black semi light	· Door dash · Side sill · Partial outer panel	

2. Evaluation item

The following table 2 shall show evaluation item according to item.

Table 2

No.	Evaluation item	Gray paint	Black paint or the same type gray paint	Test method
1	Pin Hole Limit	O	O	Refer to 5
2	Line Limit	O	O	Refer to6
3	Sagging Limit	O	O	Refer to7
4	Final Appearance	O	O	Refer to8
5	Dust Concealment	O	X	Refer to9
6	Cratering Sensitivity	O	O	Refer to10
7	Circulation Snsitivity	O	O	Refer to11
8	Overbake Closeness	O	O	Refer to12
9	Minibell . Air motor. Oil Resistance	O	O	Refer to13
10	Air Blow Resistance	O	O	Refer to14
11	Cleaning Concealment	O	X	Refer to15
12	Bleeding Limit	X	O	Refer to16
13	Anti-Crater Property	X	O	Refer to17
14	Black Paint Dust Property	X	O	Refer to18

Remark O : Evaluate X : No evaluation

Note (¹) For wet on wet paint, evaluate that painted with used paint.

(Wet on wet shall be the painting method of spraying different paint over a paint.

3. General Condition of Test

(1) Basic Concept of test condition setting

Test on the laboratory condition of simulating production line.

(2) Sample selection

Table 3

Sample material	Material	Paint
Steel plate	1 st SPC cold rolled steel plate stipulated by KIA	Pre-paint after transformation
	Zinc steel plate used in body	

Size according to test shall be as follows.

For 10,11-B,11-C,13,14,15,16, use sample of 30cm*30cm or 40cm*30cm.

For the other test, use sample of 30cm*10cm.

(3) Test material selection

Table 4

Test material	Material
Gray material Black material (Include paint proper to black paint)	Use gray or proper paint diluted with thinner regulated by thinner system adapted paint environment for test.

(4) Paint device selection

Test with paint device produced in production line or proper to this.

The following table 5 shall show use example and standard use condition according to type.

Table 5

Paint device type	Use example	Exhaust amount(cc/min)	Air pressure (kg/cm ²)	Gun distance (cm)	Voltage (kV)	Booth LH(in) wind speed(%)
lectric rotation no fire type	Mini bell	Horizontal (1 st , 2 nd) = (230,360) vertical (1 st ,2 nd) =(100, 160)	(1 ST , 2 ND) = (2.0, 2.0)	20 ~ 30	-90	0.2 ~ 0.3
Electric air-no fire type	Auto REA	Same	1.8 ~ 2.5	Same	-60	0.3 ~ 0.4
Air-no fire type	Follow graco-700	340 ~ 380	4.0	30	-	0.4 ~ 0.5

Remark Standard use condition shall be re-set under agreement.

Air pressure of electric no-fire type shall be shaping pressure.

1st and 2nd of electric paint type shall be proper to production line.

(5) Paint condition setting adjustment

The following shall be paint standard condition and re-set under agreement.

(This shall pertinent to paint condition according to test item.)

For calibration, about100u.

Table 6

Setting time	Gray ~ gray paint : 1.5minute
	Gray ~ small : 8 minute
	Black ~ small : 6 minute

Temperature time : Painted temperature : 140 C, time : 20 minute

Note) Setting : After painting, leave it as it is.

4. Test Result Report

Refer to evaluation column of each item.

Each test standard can be set by agreement.

5. Pin Hole Limit

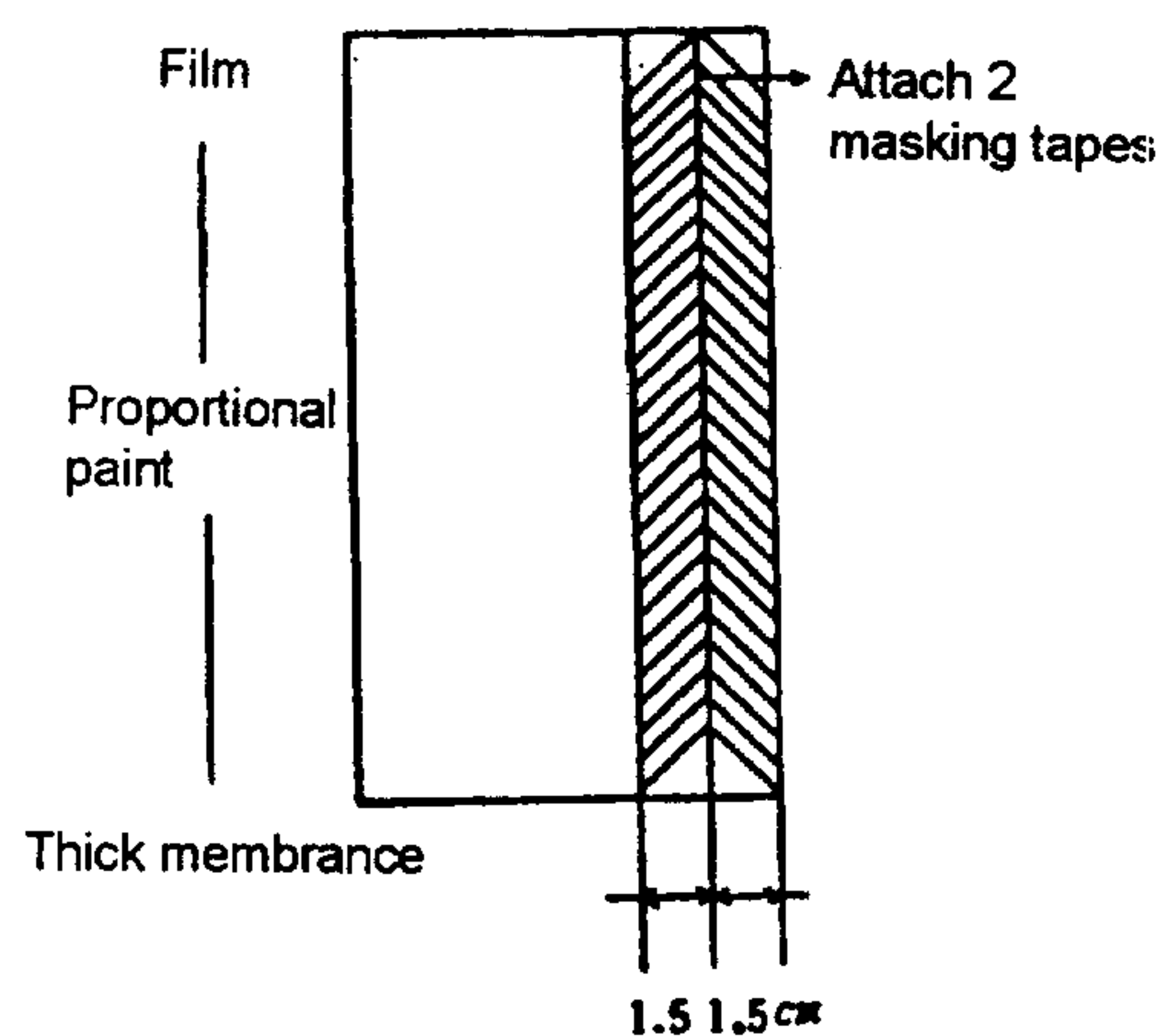
5.1 Purpose

Measure pinhole occurrence limit of paint.

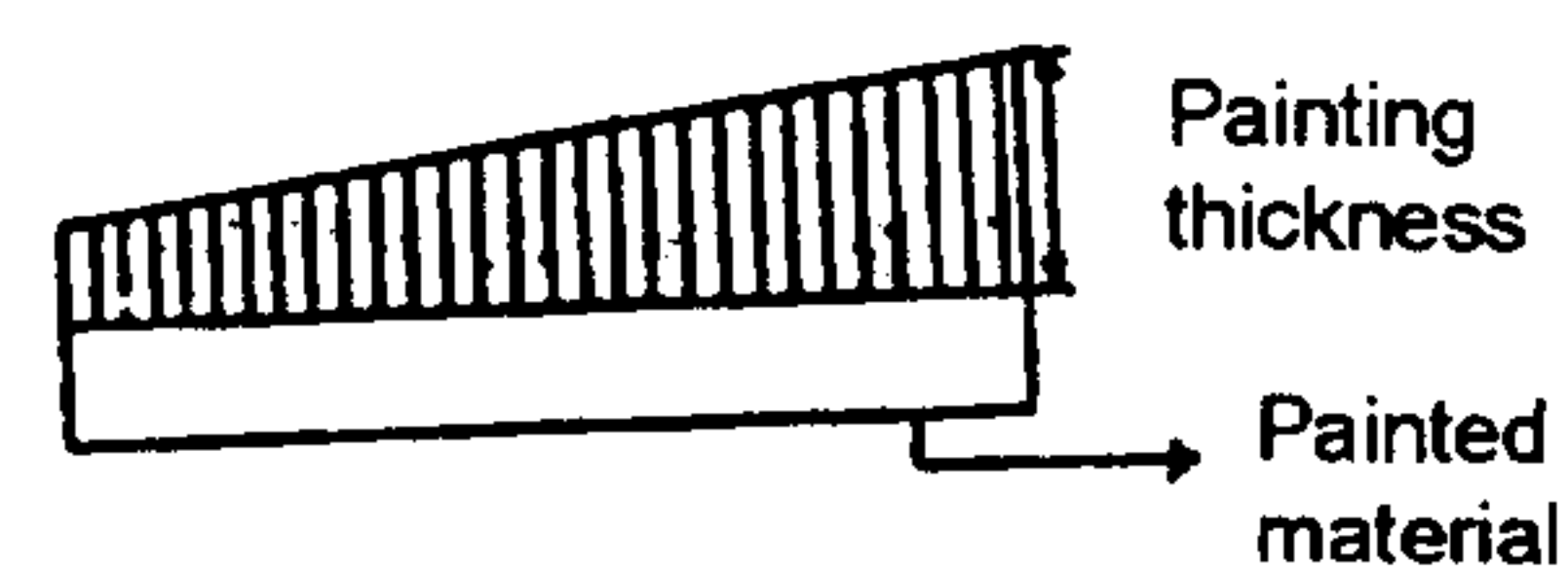
5.2 Test appliance

- (1) measurer
- (2) Dryer
- (3) Masking tape
- (4) Spray gun
- (5) Thermometer

5.3 Sample manufacturing



* Proportional paint shall be changing from thin to thick film and increase paint amount by increasing reciprocating numbers.



5.4 Test method

- (1) Paint neutral paint to the direction of attaching masking tape to 2 samples by using painter.
- (2) Set a sample for 1 minute or other for 3 minutes.
- (3) Proportional paint by the same method as (1).
- (4) Set the time. (Remove other masking tape from each sample.)
- (5) Set temperature at drier.

For painting, keep sample horizontal.

5.5 Evaluation

Check pinhole with naked eyes. and measure paint thickness and indicate neutral thickness.

5.6 Standard

Standard	More than 70 μ
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Note) For automatic painter equivalent to production line, check thickness of pinhole occurrence limit by thickening with post calibration (If necessary, pre-calibration) using air spray gun.

6. Line Limit

Line shall be ununiformity of thickness as figure 1 by paper stimulus, alien material.
(This shall occur on painted surface.)

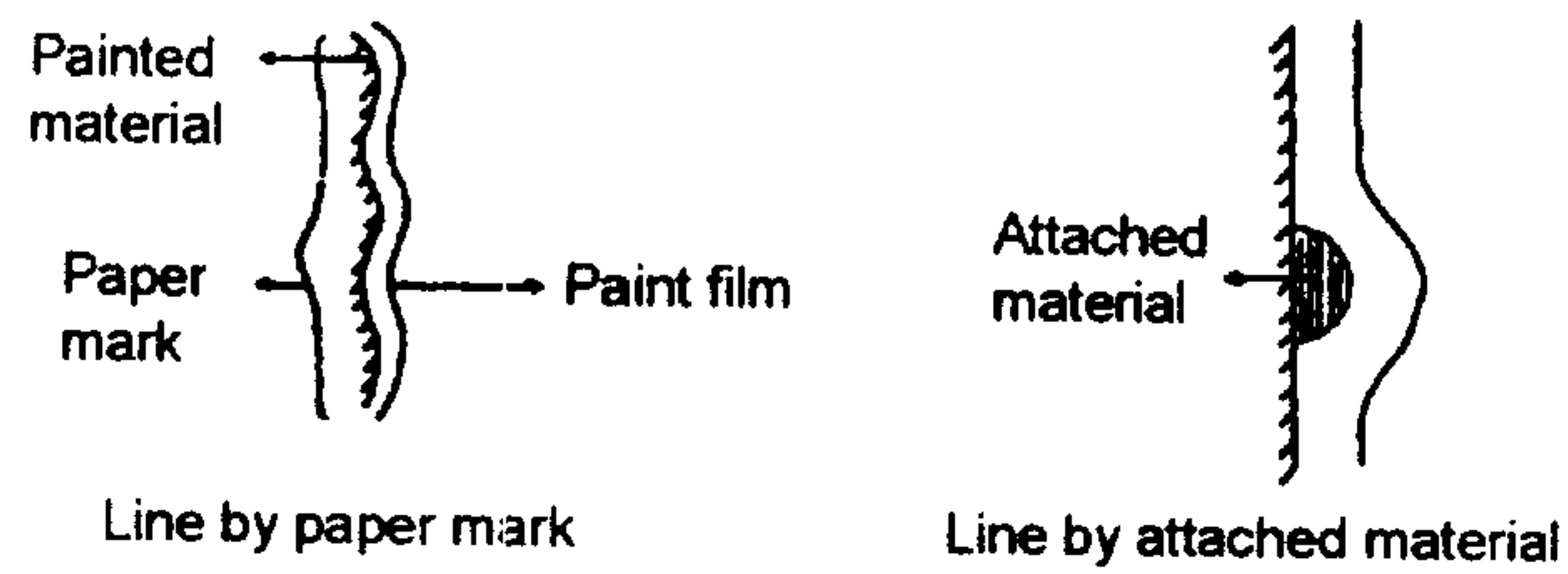


Figure 1

This shall be named as thread flow for assuming thread.

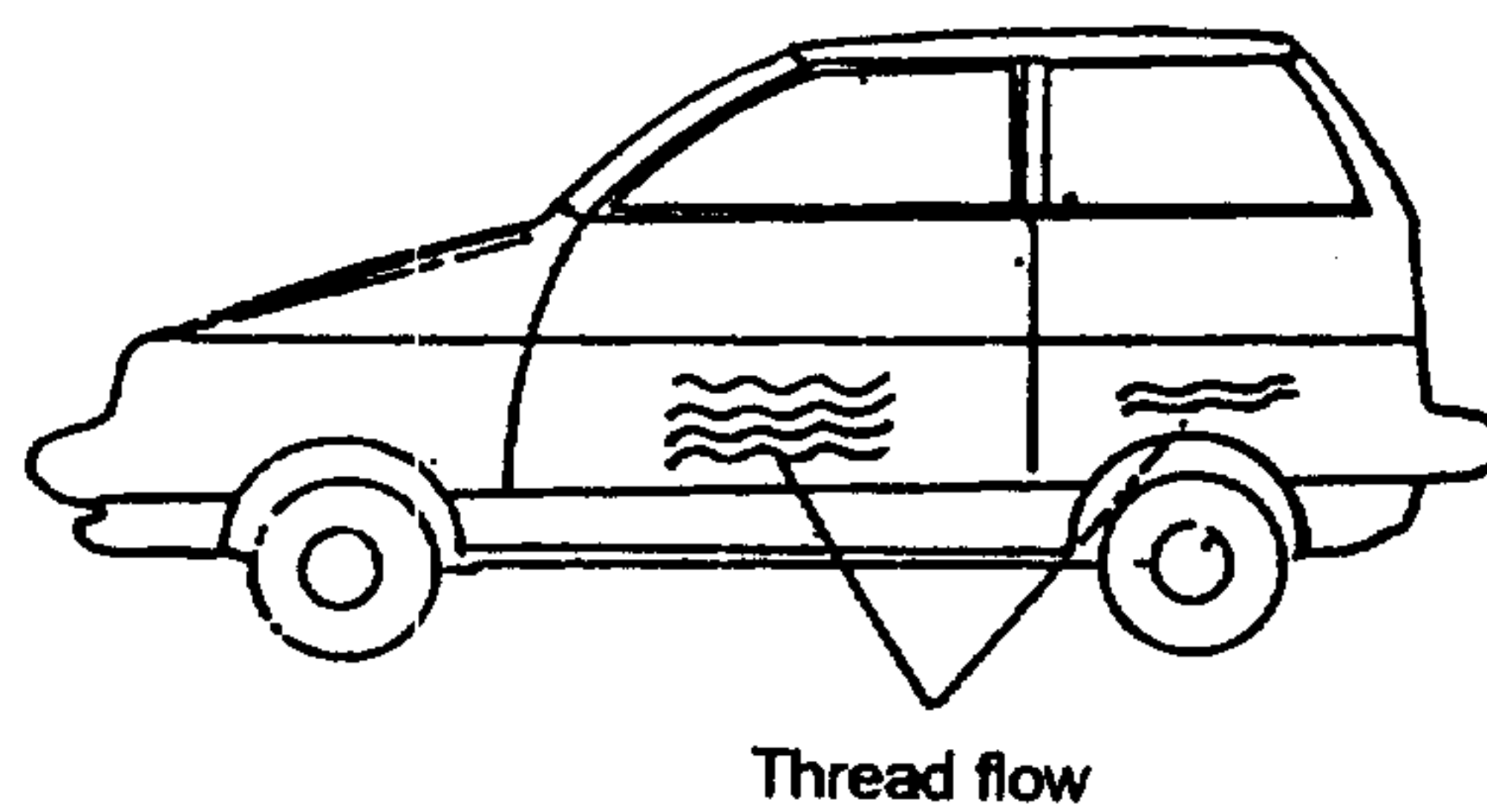


Figure 2

6.1 Purpose

Measure line flow thickness.

6.2 Test appliance

- (1) Thickness measurer
- (2) Dryer
- (3) #400 water-proof polisher
- (4) Masking tape
- (5) Spray gun

6.3 Sample making method

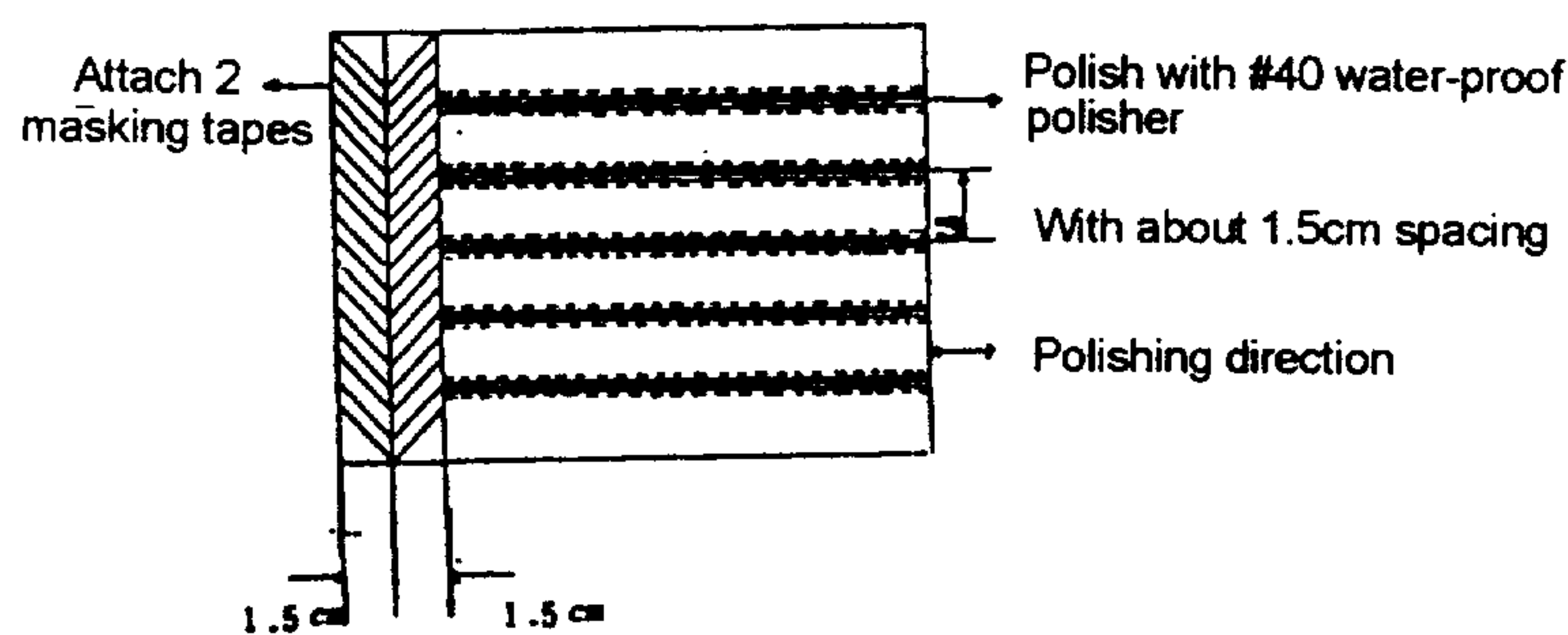


Figure 3

- (1) After polishing, attach masking tape.
- (2) Polished position can be checked after masking tape is removed.
- (3) Polish to the cross direction of sample as figure 3.

6.4 Test method

- (1) Set sample vertical, paint to attached direction of tape using painter.
- (2) Test with the same method as 5.4 (2) ~ (5).

Paint to the vertical of sample.

6.5 Evaluation

After checking line flow on paint surface, measure paint thickness of line flow and indicate it as paint thickness.

6.6 Standard

Standard	More than 60 μ
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Note) For automatic painter equivalent to production line, check thickness of line limit thickness occurrence limit by thickening with post calibration (If necessary, pre-calibration) using air spray gun.