

FLAT FILM ROLLS

1. SCOPE

These specifications are applicable for the following to polarized film.

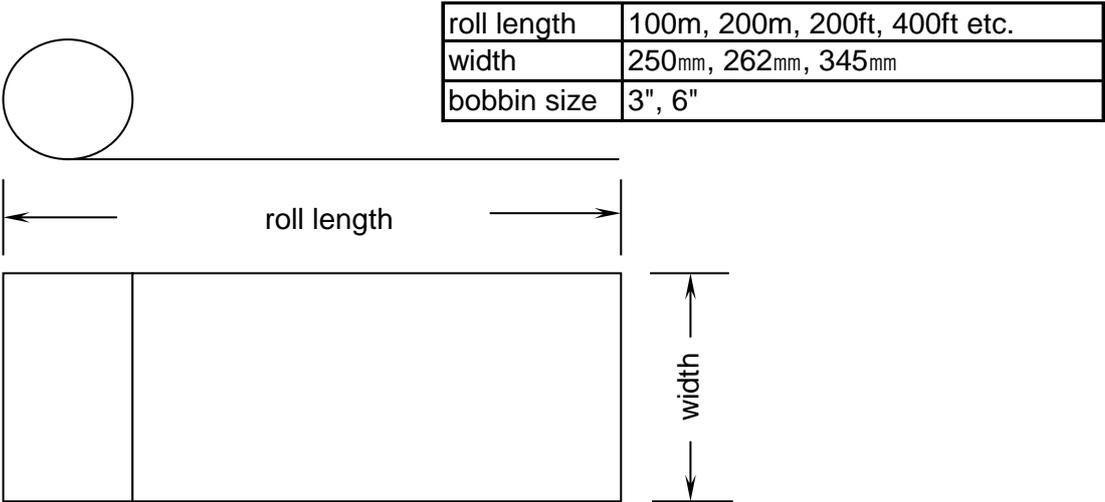
2. CONSTRUCTION

2. 1 Structure and Thickness of flat film

Protective film	: Polyolefin
Polarizing film	: PVA
Protective film	: Polyolefin

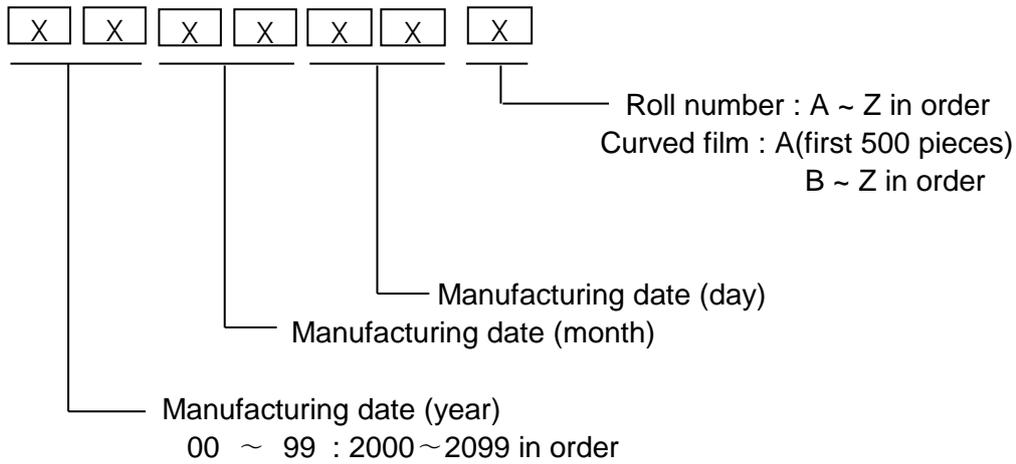
Dimensions (thickness)	Polarizing film	0.040 ± 0.005mm
	Protective film	0.050 ± 0.005mm

2. 2 Size



3. TEST LOT AND TEST REPORT

The lot number is made up of one-lot products composed from the same material under the same continuous manufacturing conditions.



Inspection shall be performed for each lot and/or every roll.
 Test results shall be submitted for each shipment.

4. INSPECTION ITEMS

NO	Item	Method
1	Appearance	6 . 1
2	Measurements	6 . 2
3	Effective part Thickness	6 . 3
4	Polarizer optical characteristics	6 . 4

5. INSPECTION FORMULA

5.1 Appearance

1m length of the outwall of every rolls should be inspected.

5.2 Characteristics

All rolls should be inspected in a part of the outwall.

6. INSPECTION METHOD

6.1 Appearance

Items	Acceptable limits	Remarks
① Pinhole	$\Phi \leq 0.15\text{mm}$	Quantity $\leq 5ea / \text{m}^2$
② Crater, Dent	$\Phi \leq 1.50\text{mm}$	Quantity $\leq 5ea / \text{m}^2$
③ Stripe	Slightly	
④ Uneven color	Slightly	
⑤ Scratches	Width $\leq 0.05\text{mm}$ Length $\leq 10\text{mm}$	
⑥ Scratches on the surface of protective film	Not affect inside polarizer	
⑦ Delaminating of protective film	Less than 10mm from the edge side.	

6.2 Measurements

Length and width are measured with a metal ruler with minimum graduation of 1mm.

6.3 Effective part thickness

With a micrometer having minimum graduation of 1/1000mm, the thickness of polarizing film is measured.

6.4 Polarizer optical characteristics : Transmittance, Polarizing Efficiency, Hue Value.

(1) A wavelength ranged from 400 to 700nm is measured by the spectrophotometer and the result is corrected by sensitivity characteristics, after which a single body and perpendicular crossing average of transmittance and polarizing efficiency.

(2) Hue is calculated by hunter system and indicated by L, a, b and Y, x, y.

(3) Specification range of product

Properties		Analysis	Tolerance
Optical Properties	Y	Spectrometer	$\pm 1\%$
	x		± 0.005
	y		± 0.005
	L*	Spectrometer	± 2.00
	a*		± 2.00
	b*		± 2.00
■ Light source C 2°, D65 2°, and D65 10°	Polarizing Efficiency	Spectrometer	-

7. Packing

The polarizing film are put on a tray with a dehumidifying agent and then packed in aluminum foil bag.

8. Marking

- ① Product name
- ② Dimensions
- ③ Quantity
- ④ Lot No.
- ⑤ etc.

9. HANDLING AND STORAGE CONDITIONS

- (1) The polarizing film sealed in its packing should be stored under the constant conditions of $20\pm 1^{\circ}\text{C}$ and $45\pm 5\% \text{RH}$ and kept away from heat shock (e.g. $35^{\circ}\text{C} \rightarrow 5^{\circ}\text{C}$).
- (2) Treat the polarizing film with care. Rough handling may damage the films.
The polarizing film is very sensitive and injured easily by rubbing, bending or hitting.
- (3) The surface of the polarizing film should not be touched by the fingers

10. CIRCUMSTANCE

Cleanness of forming room and producing room of flat film is controlled as 1000 CLASS.