BARLO® LENTICULAR

Technical datasheet

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LENTICULAR

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1. PRODUCT IDENTIFICATION

Lenticular technology is a high resolution imaging process developed for the purpose of creating multi-imaging visual effects such as 3D or animation.

Printed images that move, change shape, leap out in brilliant 3-D or even reproduce action video sequences, are made possible by the use of Quinn's extruded PETG Lenticular sheet. BARLO® Lenticular sheet is being used in the promotional, packaging and point of purchase display industries.

BARLO® Lenticular is the name for extruded Polyethyleneterephthalate Glycol (PETG) co polyester sheet from Quinn Plastics.

2. CHARACTERISTICS

- Good ink adhesion
- Good receptability
- Stable sheet dimensions
- High impact strength
- Good chemical resistance
- Environmentally safe
- Recyclable
- Meets current food contact legislation

3. APPLICATIONS

- Displays
- Graphic Arts
- Advertising
- Packaging
- Invitations
- Business cards
- Covers for CD, Video, books
- Toys
- Promotional gifts
- Book marks
- Post cards
- Mouse pads
- Puzzles
- Buttons
- Light switch plates
- Wrist bands
- Masks
- Stickers

4. PRODUCT RANGE

Manufactured on a special new line with unique tooling, BARLO® Lenticular sheet, is supplied in the following specification

Lenses per inch (LPI	75)
Thickness	0.475 mm
Sheet size	700 x 500 mm

For all other requirements, non standard sizes or new products, please contact us.

5. LENTICULAR LENS TECHNOLOGY

Lenticular technology is a high resolution imaging process developed for the purpose of creating multi-imaging visual effects such as 3D or animation, such as 'flips' or 'morphs'.

This is achieved through 4 key elements of the production process:

1. Lenticular lens
The Lenticular lens is designed with a precise parallel array of lenticels or lenses. Each lens is capable of magnifying data, which is aligned precisely underneath it. The lenticular sheet is an optically clear stable substrate with a smooth reverse surface allowing for the application of the appropriate image.

2. Digital art
Any Lenticular effect must be created from at least 2 complete in scale files. For example a 2 image flip (clown smiling, clown frowning) starts out as 2 separate files.
An animation can incorporate more files such as 4, 8 or 12, which covers the sequence of the proposed animation. A 3D image works best with at least 12 separate files covering the spectrum of the prospective.
The art must be divided precisely among all the lenses that make up the final image size. The original images are actually sliced to fit into spaces equal to the width of the lens. For example a 2 image flip would be made with one half of all lenses containing image no. 1 while the other half would contain image no. 2. The process of interleaving the original files into the master which will match precisely to the pitch of the lens is called interlacing. Pitch is defined as the number of lenticels per inch of sheet width.

3. Output
In lithographic printing the image is printed direct to the smooth, rear, surface of the Lenticular sheet. This requires films to be output from an image setter. This is a high-resolution process requiring precise calibration.
Other methods of reproduction are for example digital photographic or inkjet where the interlaced master is the output as a finished image, which then needs to be laminated to the reverse of the lens in a separate adhesive process.

4. Printing
The most common method accounting for over 90 % of the lenticular imaging in the world today, is direct to the lens lithographic printing. From high-resolution films, plates can be exposed and positioned in precise register on a 4-colour process press. Most presses available in this category are in fact likely to be 6 colour, allowing white to be printed in the same pass. Usually more opaque white needs to added later after the inks are dry. There are many methods of doing this (ink, silk screening, laminated cover stock or polypropylene film).

6. TECHNICAL INFORMATION

PROPERTY	METHOD	UNIT	BARLO LENTICULAR
GENERAL PROPERTIES			
Density	ISO 1183	g/cm³	1,27
Rockwell hardness	ASTM D- 785	R scale	105
MECHANICAL PROPERTIES			
Flexural modulus	ISO 178	MPa	2075
Flexural yield strength	ISO 178	MPa	70
Tensile modulus	ISO 527-2	MPa	2200
Tensile strength	ISO 527-2	MPa	50
Elongation at break	ISO 527-2	%	54
THERMAL PROPERTIES			
Vicat temperature (B 50)	ISO 306	°C	82
Heat deflection Temp(B) 1.82 Mpa	ISO 75-2	°C	68
Heat deflection Temp(A) 0.45 Mpa	ISO 75-2	°C	72
Spec Heat capacity	IES 1006	J/gK	1.1
Linear thermal expansion	DIN 53752	$K^{-1}x10^{-5}$	6.8
Thermal conductivity	DIN 52612	W/mK	0.20
Degradation temperature		°C	> 280
Max Service temperature		°C	70
Sheet forming temp range		°C	120-160
OPTICAL PROPERTIES			
Light transmission	DIN 5036-3	%	88
Refractive Index	ISO 489		1.57
Haze	D 1003	%	< 1.0
IMPACT STRENGTH			
Charpy (notched)	ISO 179-1	KJ/m²	10
Charpy (unnotched)	ISO 179	KJ/m²	No break
ELECTRICAL PROPERTIES			
Dielectric constant 1 kHz	IEC 250		2.6
Volume resistivity	IEC 93	TΩ.cm	605
Surface resistivity	IEC 93	TΩ	662
Dielectric strength	IEC 60243-1	KV/mm	10.7
Dissipation factor 50 Hz	IEC 250		0.01