

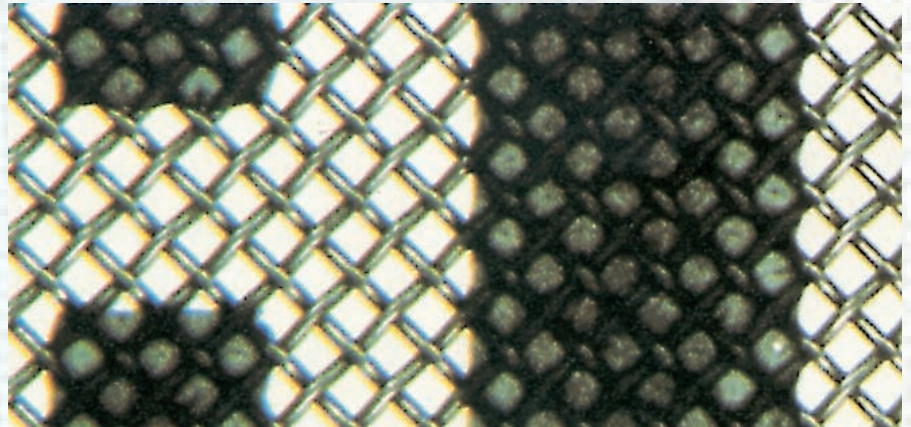
## BOPP GP

Meshes for printing on glass and ceramics

# BOPP GP Meshes for printing on glass and ceramics

## BOPP GP

BOPP GP is the name behind a comprehensive range of wire cloth manufactured to meet the specific demands of the glass and ceramics industries. These cloths are woven on modern looms under total quality control from raw material through to finished product.



## Properties

- Optimum aperture precision
- Extremely tight thickness tolerances
- Firm mesh binding
- Large open area
- Uniform weave
- Exceptionally high yield point
- No static charge
- Woven in cleanroom conditions
- Easy to use

## Results

BOPP GP wire cloth guarantees optimum print quality:

- Optimum accuracy of registration
- High resolution
- Controlled ink/paste deposit
- Long service life

## Suitability

BOPP GP wire cloth is an excellent choice for a wide range of screen printing options, including thermoplastic colours.



# BOPP GP Meshes for printing on glass and ceramics

## Applications: Glass printing

### Perfume bottles

(Flaçons, glass containers, flacons)  
 Printing on perfume flacons is an extremely demanding application, requiring the highest standards of print quality. Despite the infinite variety of shapes and forms, definition, colour accuracy and precise positioning are essential.



### Glassware

Glassware is subject to increasingly aggressive usage, therefore resistance to heat and detergents is especially important. As well as colour accuracy, exact reproduction of the image is vital.

### Liquor bottles

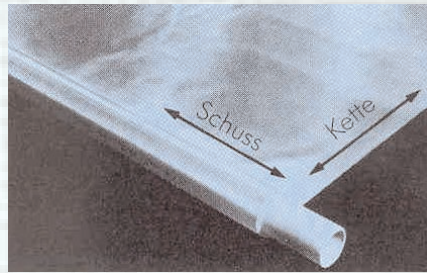
Printing on bottles is nowadays elevated almost to an art form. Delicate images, creative fonts and rich colours – even gold foiling – demand the highest levels of printing precision.



# BOPP GP Meshes for printing on glass and ceramics

## Definitions

### Warp/weft



The wires running lengthwise in a roll of wire cloth are called warp, the wires running across weft.

### Mesh opening (w) Wire diameter (d)

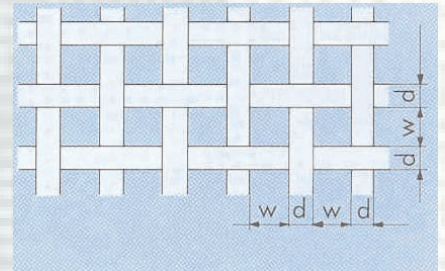
columns 1, 2, 3

The two most important parameters of BOPP GP wire cloth are the mesh opening (w) and the wire diameter (d).

BOPP GP 325

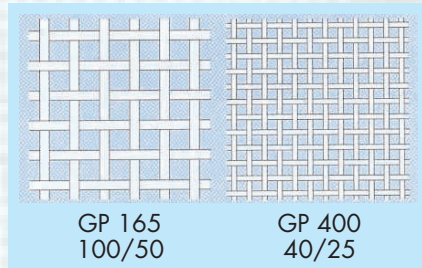
50 = w, mesh opening in microns

30 = d, wire diameter in microns



### Mesh count

column 4



The number of wires per inch (mesh)

$$n = \frac{10 \text{ mm}}{w \text{ (mm)} + d \text{ (mm)}}$$

$$\text{Mesh} = \frac{25,4 \text{ mm}}{w \text{ (mm)} + d \text{ (mm)}}$$

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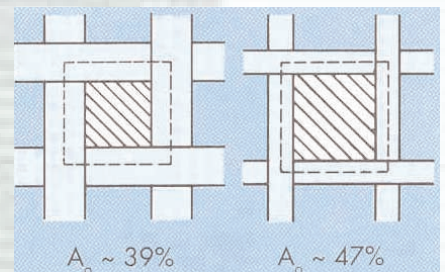
### Open area $A_o$

column 5

The open area ( $A_o$ ) is the percentage of all mesh openings in relation to the total cloth area. The higher the open area, the higher the ink passage.

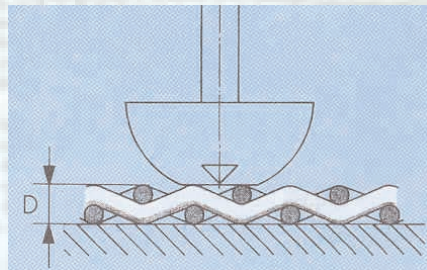
$$A_o = \left(\frac{w}{w+d}\right)^2 \times 100\%$$

e.g. GP 325: 39%



### Mesh thickness D

column 6



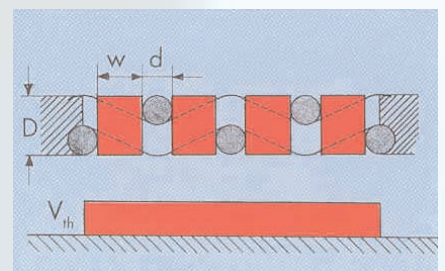
The mesh thickness is governed by the wire diameter and the weaving technique. It is measured in an unstretched condition with a sensor plate, measuring pressure 1.8 N, against a rigid flat base. The tolerances given cover our entire production of GP meshes. The variation within a single roll is considerably smaller.

### Theoretical ink volume $V_{th}$

column 7

The theoretical ink volume ( $V_{th}$ ) is equivalent to the volume of all mesh openings. If the ink deposit is insufficient, a mesh with a higher  $V_{th}$  should be used.

$$V_{th} [\text{cm}^3/\text{m}^2] = \left(\frac{w}{w+d}\right)^2 \times D$$



# BOPP GP Meshes for printing on glass and ceramics

## Specifications



1 Designation	2 Mesh opening w $\mu\text{m}$	3 Wire diameter d mm	4 Number of wires		5 Open area $A_o$ %	6 Mesh thickness $\mu\text{m}$	7 Theoretical ink volume $V_{ih}$ $\text{cm}^3/\text{m}^2$
			per inch (Mesh)	per cm (n)			
GP 165	100	0.050	165	67	44	105 $\pm$ 7	46
GP 180	95	0.045	180	71	46	95 $\pm$ 7	44
GP 200	90	0.040	200	77	48	85 $\pm$ 7	41
GP 230	75	0.036	230	90	46	75 $\pm$ 6	34
GP 250	63	0.040	250	97	37	90 $\pm$ 6	34
GP 270	56	0.036	270	109	37	80 $\pm$ 6	30
GP 300	56	0.032	300	114	40	68 $\pm$ 6	27
GP 325	50	0.030	325	125	39	62 $\pm$ 4	24
GP 400	40	0.025	400	154	38	51 $\pm$ 4	19

**Alloy** AISI 304 / DIN 1.4301

**Width** 1220 mm / 48", other widths on request.

**Roll length** 50 m or 25 m

**Specifications** Subject to technical alterations, please ask for the latest data sheet. Other specifications on request.

**How to order** BOPP GP designation  
Total length: e.g. 500 m

**Certificates** On request each roll will be supplied with a inspection certificate (chemical analysis) and thickness measurement certificate of conformity.

**Please take note of our additional products for this marketplace, including BOPP SD, BOPP SDC and BOPP SDS meshes.**

# BOPP GP Meshes for printing on glass and ceramics

## Applications: Printing on porcelain and ceramics

### Chinaware

Special designs printed using valuable materials.



Decorative ceramic tiles designed for use in demanding environments.

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Section of a plate printed using real gold.



Precise and consistent print quality on high value porcelain.

# BOPP GP Meshes for printing on glass and ceramics

## Trouble shooting check list



### Problem

#### 1. Poor screen release from substrate value

### Cause

- Mesh tension too low
- Tension loss after bonding mesh to frame
- Off-contact too small
- Emulsion/film sticks
- Squeegee touches stencil during pass
- Setting of squeegee/stencil too small during process

### Action

- Stretch screen to recommended tension
- Check tension meter
- Choose stronger frame
- Check adhesive
- Check drying temperature and time
- Increase stretching time
- Carefully increase by 0.2 mm (6-8 mils) steps
- Check emulsion/film surface finish
- Correct distance
- Correct setting

#### 2. Poor registration

- Stencil not positioned exactly over substrate
- Off-contact too large
- Frame too small
- Screen tension too low
- Squeegee pressure too high

- Position more exactly
- Reduce off-contact
- Choose bigger frame
- Check screen tension
- Reduce squeegee pressure

#### 3. Ink deposit too thin/thick

- Screen mesh too fine/too coarse
- Coating too thin/too thick
- Squeegee too hard/too soft
- Squeegee speed too fast/too slow

- Select mesh with correspondingly higher/lower  $V_{th}$
- Use thicker or thinner coating
- Correct squeegee hardness
- Check squeegee speed

#### 4. Incomplete print image

- Squeegee/stencil/substrate not parallel
- Ink viscosity too high
- Stencil too thick, incomplete ink release
- Dried ink in stencil
- Screen mesh too fine for the application
- Squeegee pressure too low
- Squeegee movement not correct

- Adjust and check squeegee edge
- Check and thin ink
- Check, use thinner stencil
- Wash out
- Select coarser mesh
- Increase carefully, monitor registration
- Check setting and speed

#### 5. Image reproduction/edge definition

- Open area of screen too small
- Mesh is too coarse for the application
- Off-contact distance too high
- Poor bridging of emulsion
- Orientation of mesh to direction of printing format lines
- Substrate too rough

- Choose mesh with higher open area
- Choose finer mesh with higher mesh count
- Reduce off-contact distance
- Check coating, improve developing
- Check design of printing format
- Check roughness, break edges

The above problems and their causes should not be viewed in isolation. Although they do occur independently in most cases, it is important that only one factor is altered at a time to establish its effect before proceeding to examine/alter further aspects.

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