



F I L T R A T I O N

Target Market:

## Coatings

Application:

Printing Ink and Photolithography Solutions

### Application Description

High quality inks are used in a number of applications including newspapers, magazines, computer printers, candy wrappers and beer cans. These inks must be filtered to provide clear, concise print graphics. Higher resolution and print quality have increased the need for better inks and print nozzle capability. The creation of offset press rolls using photolithography is one example where filtration is playing an increasing role.

**Material:** Porous Polyethylene

### Types of Filters Used

Historically, the most common filter used on low quality ink applications is needle felt bags. In recent years, meltblown bags and cartridges have been introduced at the point of application on higher quality inks. The cartridges can be either cylindrical depth filters or pleated cartridges.

### Purpose of Filtration

The primary purpose of filtration is to remove particles caused by agglomerated pigment, resin or dirt. This particulate contamination can cause print defects such as stars, lumps, rough areas, splatters and spits. These defects cause poor print quality and rejected graphics. Throughout its life, a filter should effectively remove all particles big enough to cause print defects or nozzle clogging, but not be so tight as to remove the desired pigments and resins. Many filters become more efficient during their life due to the accumulation of particulate. This can be detrimental to ink applications. Some filters remove a broad range of particles above and below their respective ratings. Filters that effectively only remove particles at and above their rating while allowing the smaller particles to pass through are called classifying filters. Ideal for this type of application, classifying filters are particularly effective if they maintain their efficiency over a significant portion of their life.

### Common Filtration-Related Problems

- **Fish Eyes** - Defects caused by lubricating oils (silicone) sometimes found on filters to assist in the manufacturing process
- **High Filter and Ink Usage** - Premature plugging caused by contaminated paint, tight and/or low surface area filters resulting in high filter usage and lost paint (filter change outs can result in \$10,000 in lost ink)
- **Stars and Rough Surfaces** - Surface defects caused by particles passing through the filter due to improper sealing, migration or too large a pore size
- **Spits, Splats, Uneven Coatings, Nozzle Plugging** - Plugged spray nozzle caused by particles passing through or around the filter
- **Uneven or Lack of Coating** - Plugged filter caused by lack of sufficient ink pressure to operate the spray nozzle

Sintered High-Density or Ultra-High Molecular Weight Polyethylene

FEATURE	ADVANTAGE	BENEFIT
<b>Rigid, Omni-Directional Pore Structure</b>		
• Absolute Ratings	• Consistent pore structure minimizes performance changes caused by differential pressure	• Reproducible performance
• Narrow Pore Size Distribution	• Highly-effective surface filtration for particles larger than the filter pore size rating	• Allows for effective cleaning, backwash and reuse
• Thermally-Bonded	• Sintered omni-directional pore structure	• No media migration, bypass or unloading from 5 to 100 microns
• Excellent Chemical and Thermal Compatibility	• High chemical resistance of HDPE and UHMWPE  • Completely incineratable with a high BTU output	• No chemical degradation resulting in bypass or contamination of the process fluid  • No incineration residue
<b>Unique, Molded Radial Design</b>		
• High Surface Area	• Low pressure drop and higher flow rate	• Increased life or fewer filters results in lower filtration costs
• Open Channels	• Easy access to filtration area	• Effective filtration and cleaning
• Single-Layer Structural Media	• Eliminates unnecessary support materials	• Improves backwash and cleanability
• Rigid, One-Piece Construction	• Multiple diameters, lengths and end configurations	• Easily adapts to existing filtration systems

PERFORMANCE COMPARISON

Rigid, Omni-Directional Pore Structure

POREX Radial Cartridge Filter vs	Bags	Depth Cartridges	Pleated Cartridges
Micron Rating	= / -	= / -	= / -
Absolute Filtration	= / +	= / +	= / +
Surface Retention	= / +	= / +	+
Classification Filtration	+	= / +	+
Sintered Process	+	+	+
Polyolefin Material	= / +	=	=
Chemical Compatibility	=	=	=
Thermal Compatibility	=	=	=

Unique, Molded Radial Design

POREX Radial Cartridge Filter vs	Bags	Depth Cartridges	Pleated Cartridges
Backflushable	+	+	+
Surface Area	+	+	-
Molded Construction	+	+	+
Rigid Structure	+	= / +	+
Open Pleats	+	+	+
Disposal Cost	-	+	+
Performance Priced	+	+	+
Single Material	= / +	=	= / +
Vessel Seal	+	=	=
Housing Fit	-	=	=

Symbol Key: = Porex equivalent + Porex advantage - Porex potential limitation

