



F I L T R A T I O N

Target Market:

Metal Finishing

Application:

Machine Tool Coolant

Application Description

Aqueous-based liquid coolants are used to cool and lubricate metal finishing tools to facilitate metal cutting, extend tool life and maintain part dimensions. These fluids get contaminated with metal shavings, shop dirt and oils from the metals' surface. The fluids are recirculated from a tank to the tool and then back. The contaminants need to be removed for the fluid to be reused.

Material: Porous Polyethylene

Types of Filters Used

A wide variety of filters are used in machine tool coolant applications depending on the size of the machine tool, shop and type of machining. Several filters can be used in a series including roll filters, bag filters and cartridge filters.

Purpose of Filtration

The primary purpose of filtration is to reuse the fluid by removing metal shavings and dirt. Oil contamination does not affect the machine tooling, but does need to be removed for cutting fluid disposal.

Common Filtration-Related Problems

- Oil contamination of the aqueous fluid caused by plugged filter media
- Shop dirt bypass, roll filters and open bag filters
- Inadequate tool cooling and lubrication and low flow rates caused by plugged or undersized filters

Sintered High-Density or Ultra-High Molecular Weight Polyethylene

FEATURE	ADVANTAGE	BENEFIT
Rigid, Omni-Directional Pore Structure		
• 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
Unique, Molded Radial Design		
• 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

