



## Clean Liquid Systems, LLC

7422 Kearney Hill Lane

Spring, TX 77389

Phone# 713-253-0100 / 713-253-5001

dpalermo@cleanliquidsystems.com

### MELT BLOWN CARTRIDGES<sup>™</sup>

## QUAD SERIES

## MELT BLOWN FILTERS

#### QUAD-PRO

- FDA Title 21 Compliant
- Great Value
- No Glue or Binders
- High Dirt Loading
- Low Pressure Drop

#### QUAD-DELUXE

- 95% Efficiency at designated microns
- FDA Title 21 Compliant
- Integrated 4 Stage Depth Loading
- High Dirt Loading
- Low Pressure Drop

#### QUAD-ELITE

- 99% Efficiency at designated microns
- FDA Title 21 Compliant
- Integrated 4 Stage Depth Loading
- Cored Center for Filter Stability
- High Dirt Loading
- Heat set surface to stop fiber migration

#### QUAD-RO

- High-End Membrane Protection when it is Critical
- FDA Title 21 Compliant
- Integrated 4 Stage Depth Loading
- Cored Center for Filter Stability
- High Dirt Loading
- No Fiber Migration



Melt Blown Cartridges are WQA C USA  
tested and certified to:  
NSF/ANSI 372 / NSF/ANSI 61 / CSA B483.1  
NSF/ANSI 42 - Component



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The 4-zone technology allows the larger particles to be trapped in the outer most layers. The inner most layer is where the true efficiency rating is achieved. The two images show how there is a consistent dirt loading pattern throughout the life of the filter.



Zone 1  
Filter Media

Zone 2  
Prefilter

Zone 3  
Dirt Loading

Zone 4  
Dirt Loading/Open Fiber Finish

This image shows the Quad Series cut away layer by layer. The outermost layers are made of larger diameter fibers to allow larger particles to flow through, while the inner most layers trap the fine particles maximizing the life of the filter.

The Quad Series is offered with or without a heavy duty polypropylene core.



## ADVANTAGES

- Removal from 1um to 100um
- Quad Zone technology allow the formation of 4 separate filtration zones within the depth of the filter cartridge.
- Continuous 4-zone structure provides effective pre-filtration and final filtration.
- State of the art computer controlled manufacturing process delivers an extremely accurate and consistent product per each zone for proper fiber sizing.
- High-strength polypropylene core maximizes flow and optimizes each of the 4 zones. If required all Quad series may be ordered with cores.
- 100% polypropylene construction allows a wide range of uses, including FDA compliant material for food and beverage contact under CFR Title 21.
- All Quad Series cartridges are free of surfactants, binders or adhesives of any kind.
- Continuous lengths up to 72".
- All End Configurations available to fit most industry standards.
- All end caps are thermal bonded, no glues or adhesives are used.

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C USA





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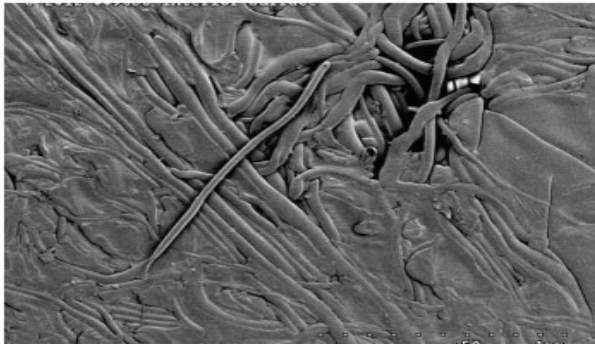


Image A: "Competitor Surface"

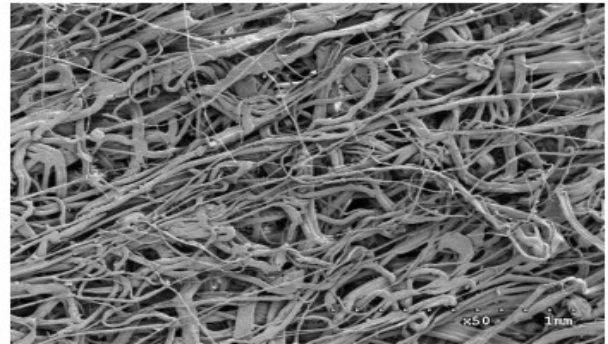


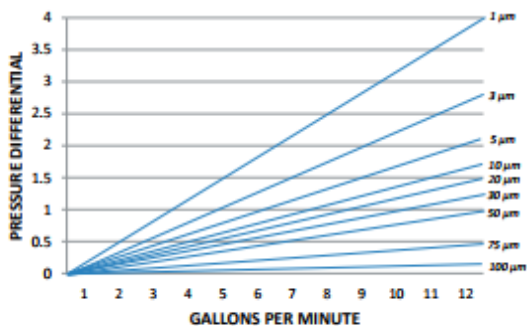
Image B: "CLS Surface"

Image A is a microscopic photo of the outer surface of a typical melt blown filter. Most competitors blind off the surface of the filter to create smaller openings to achieve higher efficiencies. Our ability to control the inner layers' efficiencies separately allow the *Quad BE Series* to have a more open outer surface as in Image B. Not having to sacrifice dirt holding capacity to achieve high efficiency is why the *Quad BE Series* is superior to other melt blown filters.

## FLOW RATES VS DIFFERENTIAL PRESSURE

### QUAD RO

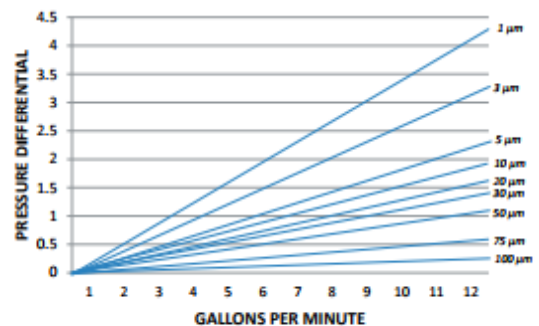
#### 2.5 OD Cartridges



This chart exemplifies normal flow rate for a cartridge length of 10" with water at an ambient temperature as the test fluid. Cartridge length does not cause change in differential pressure, but increasing flow across the housing does.

### QUAD ELITE

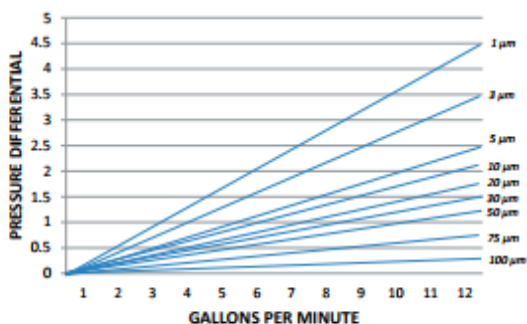
#### 2.5 OD Cartridges



This chart exemplifies normal flow rate for a cartridge length of 10" with water at an ambient temperature as the test fluid. Cartridge length does not cause change in differential pressure, but increasing flow across the housing does.

### QUAD DELUXE

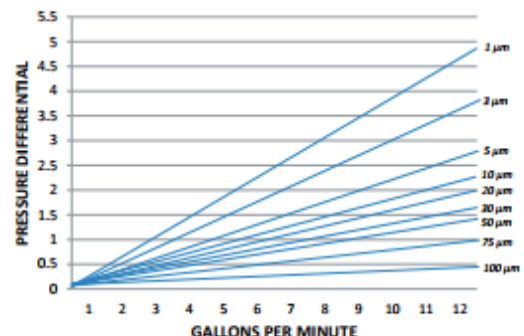
#### 2.5 OD Cartridges



This chart exemplifies normal flow rate for a cartridge length of 10" with water at an ambient temperature as the test fluid. Cartridge length does not cause change in differential pressure, but increasing flow across the housing does.

### QUAD PRO

#### 2.5 OD Cartridges



This chart exemplifies normal flow rate for a cartridge length of 10" with water at an ambient temperature as the test fluid. Cartridge length does not cause change in differential pressure, but increasing flow across the housing does.



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## SPECIFICATIONS

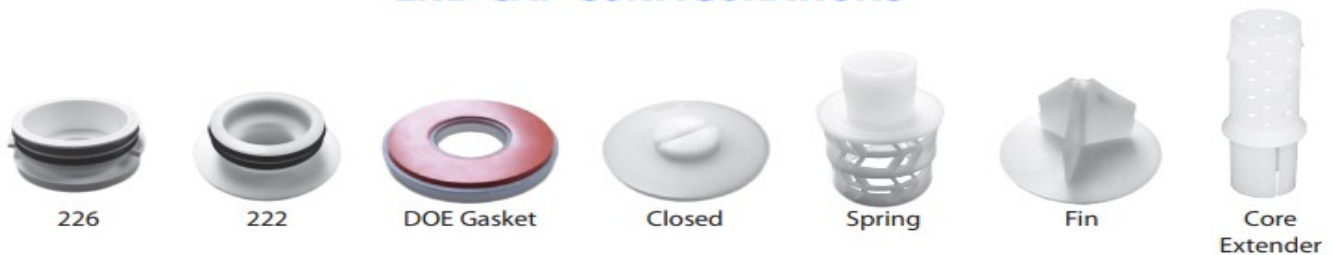
- Maximum Forward Differential Pressure  
40 psid (1.7 bar) @ 155° F (66° C)  
60 psid (3.4 bar) @ 86° F (30° C)
- Recommended Change Out Differential Pressure  
35 psid (2.4 bar)
- Micron Ratings  
1, 5, 10, 20, 25, 30, 50, 75 & 100

- Biosafety  
All polypropylene components meet the specifications for biological safety per the USP for Class VI-121° C plastics.
- FDA Listed Materials  
all materials used in production are FDA Title 21 compliant

Melt Blown Cartridges are WQA tested and certified to:  
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NSF/ANSI 42 - Component



## END CAP CONFIGURATIONS



## BUILDING A PART NUMBER

MELT BLOWN	MEDIA	MICRON	DIAMETER	LENGTH	SERIES	CORE (OPTIONAL)	END CAP	GASKET/O-RING
B	E	1	S	2	X		2	B
B	E = Polypropylene	1 5 10 20 25 30 50 75 100	S = 2.5" Standard M = 4.5" * C = Custom	1 = 9.875 2 = 9.75 3 = 10 4 = 19.5 5 = 20 6 = 29.25 7 = 30 8 = 39 9 = 40 W = 50 C = Custom up to 72"	S = Quad Pro X = Quad Deluxe A = Quad Elite R = Quad Ro	H = Polypropylene Core (Series A & R require a core)	1 = DOE/no caps ✓ 2 = 222/Fin ✓ 3 = 222/Spring ✓ 4 = 222/Closed ✓ 5 = 226/Closed ✓ 6 = 226/Fin 7 = 226/Spring 8 = SOE/Spring ✓ 9 = DOE Gasket ✓ A = Custom E = Core Extender ES = Core Extender/Spring	B = Buna ✓ V = Viton* T = Teflon* S = Silicone ✓ N = Neoprene D = EPDM P = Polyfoam  (No Selection required for DOE)

\*4.5" Diameter, only DOE is available, ✓Combinations are certified by WQA