



AHLSTROM
MUNKSJÖ



AHLSTROM-MUNKSJÖ DISRUPTOR®

Filter Media for Water Purification



Disruptor®

Breakthrough technology for the more demanding water purification needs

Not directly comparable to any other water purification media currently in the market, Disruptor® is an electro-adsorptive technology: due to its crystal structure, the mineral creates a natural, strong positive charge which attracts the negative charge present on most submicron contaminants. Its electro-positive wet-laid nonwoven technology, with a pore size of 1.2 - 1.5 microns, captures very small diameter substances and pathogens, removing larger particles mechanically.

When exposed to water having a pH between 5 - 9 a charge potential is generated by the natural crystal structure of the fibers overlapping further into the fiber pore structure.



Why choose Disruptor®

Performance

Disruptor® removes a wider range of pathogens and contaminants than UF/Hollow fibers, carbon blocks, particulate cartridges and ultraviolet technologies such as bacteria/legionella, viruses, cyst, endotoxin, polysaccharides, colloids, trace pharmaceuticals, particulates among other pathogens. With a 1E5 -1E6 CFU/mL challenge concentration we can above 2000 liters/m2 capacity still reach Log 6 level LRV values for E-Coli which is equal to > 500,000,000,000 removed CFU of E-Coli per m².

Energy Savings and Sustainability

Disruptor® offers very high flux rates at lower pressure drops compared to competing technologies with similar biological removal performance.

Product Safety and Taste

Disruptor® removes effectively the pathogens and other contaminants, but in parallel maintaining the minerals for taste in the water without issues of handling “brine” waste water using RO systems. Compared to UF/hollow fibers Disruptor® does not block easily and filter remains odorless even if not used for several days. All Disruptor® grades are complying under NSF/ANSI 42 applicable drinking water requirements.

Flexibility

Disruptor® can be used as a stand alone solution or in combination with other technologies depending on the level of water purification needs. It can be used in pleated configurations to fit any size filter housing, or in the format of die cut flat samples.

How can Disruptor® be used?

Due to the open media structure, Disruptor® can be used in a very wide range of end uses covering both pressurized water purification systems as well as gravity flow applications. In addition to outstanding pathogen performance products available also with special functionalities such as chlorine removal, heat-sealing, and antimicrobial treatment for preventing bacteria build-up. The removal of selected trace metals also possible in given pH ranges.

Disruptor® can compete as a stand alone alternative to polymeric membranes or used in combination with other water purification technologies. Disruptor® media is also easy to convert and can be made into virtually any size filter cartridge.



Where can Disruptor® be used?

Thanks to its features, Disruptor® is applicable both for point-of-entry (POE) and point-of-use (POU) applications.

- In a single or multi-layer Disruptor® stand-alone format for biological removal
- In a single or multi-layer Disruptor® stand-alone format for biological removal and chlorine removal
- In combination with CTO (Carbon Blocks) for biological removal and chlorine and/or heavy-metal removal
- Before RO system for reducing RO membrane fouling
- After RO system for biological removal and improved water taste
- Gravity applications such as countertop dispensers, rain water treatment, roof top filters, etc.

Primary applications



Personal

Highly adaptable to small personal hydration devices such as water bottles and backpacks



Residential

Applicable for both point-of-entry and point-of-use devices including whole house filters, countertop, tap, pitchers, appliance and under counter filters

Disruptor® Standard Product Portfolio

Properties	5283	5288	5289	5293	*5297
Grade type	White	White	PAC for Chlorine removal	PAC for Chlorine removal	White Pre-filter
Special treatment	Heat-sealable	Heat sealable Antimicrobial	Heat-sealable Antimicrobial	Heat-sealable Antimicrobial	Heat-sealable
Basis weight - gsm	318	313	313	313	313
Thickness - mm	0,99	0,95	0,95	0,95	1,0
MFP - micron	1,2	1,2	1,4	1,55	6,8
Rapidity - mls/min	9,0	9,0	9,0	9,0	120,0
Biological removal Initial LRV: RT, MS2, Cyst	LOG 6 / LOG 4 / LOG 3,5	LOG 6 / LOG 4 / LOG 3,5	LOG 6 / LOG 4 / LOG 3,5	LOG 6 / LOG 4 / LOG 3,5	Log X / Log X / Log X

*5297 will soon be replaced with a new pre-filter grade

Displacing conventional water treatment with Disruptor®

Water Remediation Technologies - Residential, Commercial, Industrial, Municipal, Desalination

Contaminants	Disruptor® PAC Technology	RO	NF	UF	MF	Particulate Cartridges	Carbon Block	Ultra Violet
Dissolved Salts		X						
Endotoxin	X	X	X	X	X	X		
Virus	X	X	X					X
Bacteria	X	X	X	X	X	X	X	X
Cysts	X	X	X	X	X	X	X	X
Polysaccharides (TEP)	X	X	X	X	X			
Colloids	X	X	X	X				
Particulates	X	X	X	X	X	X	X	
Chemical Reduction	X	X					X	X
Trace Pharmaceuticals	X	X					X	X

Membrane definition: Reverse Osmosis = RO; Nanofiltration = NF; Ultrafiltratio = UF; Microfiltration = MF.

What is next for Gravity Flow applications? Introducing Disruptor® FastFlow

Ahlstrom-Munksjö launches the latest extension to the Disruptor® product family called Disruptor® FastFlow which is a real stand-alone technology for the higher end water purification market.

The unique Disruptor® technology is especially well suited for more demanding gravity flow applications. Due to the open media structure it is possible to gain sufficient flow without sacrificing the high microbiological purification rates.

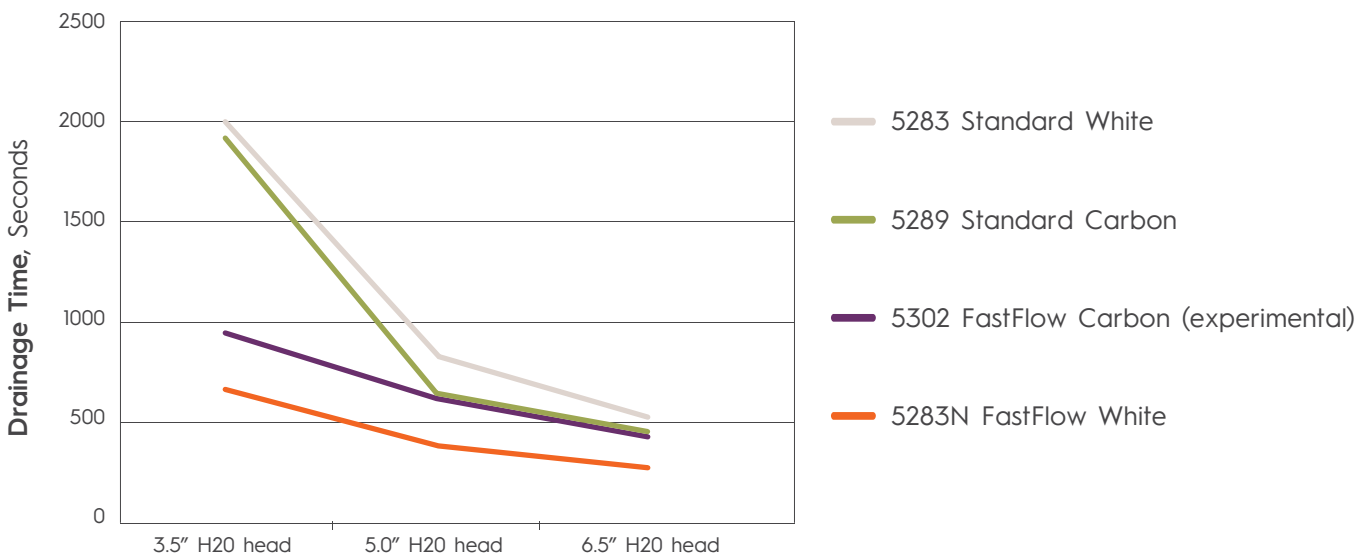
Main features and benefits

- Faster wetting time reaching constant flow conditions
- Faster overall time to filter the targeted water quantity
- Same LVRs as with the standard Disruptor® product offering including also activated carbon for chlorine removal and silver for media bacteria protection.
- Disruptor® FastFlow can also be used in pressurized system

Primary applications

- Pitchers
- Water bottles
- Countertop devices (residential)

Comparison of Traditional and FastFlow Disruptor® Grades



Disruptor® FastFlow Product Portfolio

Grade	Basis weight gsm	Thickness mm	MFP μ	Initial Virus Removal LRV	Initial Bacteria Removal LRV	Initial Cyst Removal LRV
5302	313	0,95	1,4	LOG 4	LOG 6	LOG 3,5
5283N	318	0,99	1,2	LOG 4	LOG 6	LOG 3,5

Ahlstrom-Munksjö is a global leader in fiber-based materials, supplying innovative and sustainable solutions to its customers. Our mission is to expand the role of fiber-based solutions for sustainable everyday life. Our offering include filter materials, release liners, food and beverage processing materials, decor papers, abrasive and tape backings, electrotechnical paper, glass fiber materials, medical fiber materials and solutions for diagnostics as well as a range of specialty papers for industrial and consumer end-uses. Our annual net sales are about EUR 3 billion and we employ some 8,000 people. The Ahlstrom-Munksjö share is listed on the Nasdaq Helsinki and Stockholm.

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