



Colorado Department
of Public Health
and Environment

Summary of Accepted Bag and Cartridge Alternative Filtration Technologies

Colorado Department of Public Health and Environment - Water Quality Control Division - Engineering Section

Revised Aug 2021 <https://cdphe.colorado.gov/water-quality>

Manufacturer	Model	Compliance Credit Awarded		Log Inactivation Required through Disinfection			Flow Rate / Flux	Max Differential Pressure (DP) or Trans Membrane Pressure (TMP) (psid)	Max Influent Turbidity	Demonstrated Log Removal		Local Contact
		Giardia	Crypto	Giardia	Crypto	Viruses				Giardia	Crypto	
Filtration Systems	Filtration Systems 2-State Filtration: Pre-filter model Ultrafit® 500-P000-P2-DP Final filter model Ultrafit® 700-P001-P2-IP	2.5	2.0 [*]	0.5	N/A [*]	4.0	15 GPM	30	1 NTU	3.1	3.1	Michael Goldman Filtration Systems 954-572-2700 mgoldman@filsys.com
Graver Technologies	QCR, QMA Cartridge Filter	2.5	2.0 [*]	0.5	N/A [*]	4.0	7 gallons per minute (GPM) for 10 inch (in.) cartridges 14 GPM for 20 in 21 GPM for 30 in 28 GPM for 40 in	35	Prefiltration is required	3.7	3.7	Dirk Lamprecht Industrial Process Technologies 303-975-9487 dirk@iptequipment.com
	WaterTEC Cartridge Filter	2.5	2.0 [*]	0.5	N/A [*]	4.0				3.8	3.8	
	ZTEC-B Cartridge Filter	2.5	2.0 [*]	0.5	N/A [*]	4.0				3.8	3.8	
Harmsco	PPFS-HC-40-1 PPFS-HC-90-1 PPFS-HC-170-1	2.5	2.0 [*]	0.5	N/A [*]	4.0	15 GPM (HC 40) 30 GPM (HC 90) 50 GPM (HC 170)	25	1 NTU	3.5	3.5	ProWest Filtration, Inc. Lindsey Smith / 303-588-8690 LSmith@ProWestFiltration.com Dennis Smith / 303-803-8301 DSmith@ProWestFiltration.com www.ProWestFiltration.com 1101 36th St., Evans, CO 80620
	HC/40-LT2 HC/90-LT2 HC/170-LT2	2.5	2.0 [*]	0.5	N/A [*]	4.0	MUNI 40 MP (30 GPM) MUNI 90 MP (65 GPM) MUNI 170 MP (100 GPM) MUNI-1-2FL-304 (100GPM) MUNI-3-3FL-304 (300GPM) MUNI-5-4FL-304 (500GPM) MUNI-8-6FL-304 (800 GPM)	30	1 NTU	3.6	3.6	
Rosedale	PS-740-PPP-356	2.5	2.0 [*]	0.5	N/A [*]	4.0	8135-2F—1-150-S-E-700-NSF 20 GPM 18435-2F—1-150-S-E-700-NSF 80 GPM 24435-3F1-150-S-E-700-NSF 140 GPM 36435-4F—1-150-S-E-700-NSF 360 GPM 42435-4F—1-150-S-E-700-NSF 420 GPM 48435-6F-1-150-S-E-700-NSF 580 GPM	30	1 NTU	3.1	3.1	Dan Morosky Rosedale Products 734-623-1129 / 734-665-8201 danm@rosedaleproducts.com
Strainrite	Strainrite Two Stage Filtration System: Aqua-Maxx PF-A Prefilter Aqua-Maxx FF-A Final Filter AQ2-2 vessel (manufactured after 1/1/2007) with AQB-Perf support basket	2.5	2.0 [*]	0.5	N/A [*]	4.0	50 GPM	18- across both stages	Comprehensive Particle Size Analysis Test Recommended	3.5	3.5	ProWest Filtration, Inc. Lindsey Smith / 303-588-8690 LSmith@ProWestFiltration.com Dennis Smith / 303-803-8301 DSmith@ProWestFiltration.com www.ProWestFiltration.com 1101 36th St., Evans, CO 80620
	Strainrite Two Stage Filtration System: HPM99-CC-2-SR Prefilter HPM99-CCX-2-SR Final Filter AQ2-2B vessel with AQC-1 compression device	2.5	2.0 [*]	0.5	N/A [*]	4.0	20 GPM	25 - per individual stage	5 NTU Pretreatment can be utilized to meet this goal	3.0	3.0	
	Strainrite AQ-PMXR9 Cartridges in Graver LPF, SC, or MC series Housings	2.5	2.0 [*]	0.5	N/A [*]	4.0	2.5 gpm per 10" cartridge 5.0 gpm per 20" cartridge 7.5 gpm per 30" cartridge 10.0 gpm per 40" cartridge	30	Recommended	>3.5	>3.5	

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* - The Division reserves the right to re-evaluate the Pathogen Log Removal Credits for any alternative filtration technology as required by the LT2ESWTR.

Addition of filtration treatment or replacement of existing filtration treatment is considered to be a change in treatment. Article 1.11.2(b) of the *Colorado Primary Drinking Water Regulations* (CPDWR) requires that no person shall commence construction of any new waterworks, or make improvements to or modify the treatment process of an existing waterworks, or initiate the use of a new source, until plans and specifications for such construction, improvements, modifications or use have been submitted to, and approved by the Department. A Professional Engineer registered in the State of Colorado shall design all treatment systems serving a community water supply. For additional information regarding the plans approval process, please contact your regional Colorado Department of Public Health and Environment Office.



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Summary of Accepted Alternative Membrane Filtration Technologies

Colorado Department of Public Health and Environment - Water Quality Control Division - Engineering Section

Revised October 2022 <https://cdphe.colorado.gov/water-quality>

Manufacturer	Model	Compliance Credit Awarded		Log Inactivation Required through Disinfection			95% Effluent Turbidity	Direct Integrity Testing Frequency	Max Flux @ 20°C	Max Flux @ 1°C	Max Trans Membrane Pressure (TMP) (psid)	Max Influent Turbidity or Prescreening	Local Contact
		Giardia	Crypto	Giardia	Crypto	Viruses							
Microfiltration/Ultrafiltration													
BASF-inge	dizzer XL 0.9 MB 60	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	105	60	21	300 micron required.	Dave Holland Aqua-Aerobic Systems, Inc. (815) 639-4470 dholland@aquaaerobic.com
	dizzer XL 0.9 MB 70	3.0	3.0*	0.0	N/A*	4.0			105	60	21		
	dizzer XL 1.5 MB 40	3.0	3.0*	0.0	N/A*	4.0			105	60	21		
	dizzer XL 1.5 MB 50	3.0	3.0*	0.0	N/A*	4.0			105	60	21		
Dow Water and Process Solutions	SFD-2860 and 2880	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	70	40	30	300 micron required.	Kelly Lange-Haider
	IntegraPac-51 and 77	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	70	40	30	300 micron required.	Dow Water and Process Solutions (952) 897-4311
	IntegraFlo-74 and 102	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	70	40	30	300 micron required.	KPlange-haider@dow.com
DuPont Memcor	M10C	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	40	23	22	250 – 500 micron pre-screening is required.	Nick Lucas MISCO Water 303-309-6150 nlucas@miscowater.com
	L10V or N	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	80 (L10V) 155 (L10N)	46 (L10V) 88 (L10N)	22		
	L20V or N	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	80 (L20V) 155 (L20N)	46 (L20V) 88 (L20N)	22		
	L40N	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	70	40	22		
	S10N	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	80	46	22		
Innovative Water Technologies	IWT 275	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	9.5 GPM continuous at 20 deg. C	9.5 GPM continuous at 1 deg. C	40	Prefiltration is required	Jack Barker Innovative Water Technologies 719-254-4426/ 877-567-9310 sales@innovativeH2o.com
	Homespring UF211	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	4.5 GPM continuous at 20 deg. C	4.5 GPM continuous at 1 deg. C	40	Prefiltration is required	
Kruger/ Metawater	KCM269	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	175	100	55.0	Up to 2000 NTU Tested	D.H. Lindsey Co. Douglas Lindsey 303-843-9116
Nanostone	CM-151	4.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	300	171	100.0	2000 NTU Feed, 400 micron pre-screen	Stanton Smith Nanostone Water, Inc. stanton.smith@nanostone.com 617-460-9433
Pall	Microza	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	69	43.5	Not spec'd. Prescreen typical.	Mark Sampson Water Control Corp 303-477-1970 m.sampson@watercontrolcorp.com



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Summary of Accepted Alternative Membrane Filtration Technologies

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		Compliance Credit Awarded		Log Inactivation Required through Disinfection			95% Effluent Turbidity	Direct Integrity Testing Frequency	Max Flux @ 20°C	Max Flux @ 1°C	Max Trans Membrane Pressure (TMP) (psid)	Max Influent Turbidity or Prescreening	Local Contact
Manufacturer	Model	Giardia	Crypto	Giardia	Crypto	Viruses							
Microfiltration/Ultrafiltration													
Pentair - Innovative Water Technologies	Homespring UF211	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	4.5 GPM continuous at 20 deg. C	4.5 GPM continuous at 1 deg. C	40	Prefiltration is required	Jack Barker Innovative Water Technologies 719-254-4426/ 877-567-9310 sales@innovativeH2o.com
Pentair X-Flow B.V.	X-Flow SXL-225 and SXL-55	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	31	Pretreatment required if raw water exceeds 100 NTU	Deb Jensen Filter Tech Systems, Inc. 888-287-8292 / 970-254-2855 Deb@filtertechsystems.com
Polymem	Polymem UF120S2	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	27	15.4	29.0	200 micron prescreen	Polymem Direct
Scinor Water America	SMT600-P50	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	43.5	Required - 500 micron	Jan Cornelius, P.E. Scinor Water America Phone: 607.342.6528 Email: jan.cornelius@scinor.com
	SMT600-P80	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	43.5	Required - 500 micron	
	SMT600-P23	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	43.5	Required - 500 micron	
	SMT600-P38	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	43.5	Required - 500 micron	
	SMT600-S26, S40, S48, S51, S60	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	11.0	Required - 500 micron	
SUEZ Water Technologies & Solutions	Zeeweed 500	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	60	34	12	500 micron prescreening typically required.	Grant Macinnis, P.Eng. SUEZ WTS Tel: +1 (720) 855-7296 Mobile: +1 (303) 396-9532 grant.macinnis@suez.com
	Zeeweed 1000	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	60	34	13		
	Zeeweed 1500-550 and 1500-600	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	90 (1500-550) 100 (1500-600)	51 (1500-550) 57 (1500-600)	45	500 micron pre-screen – additional pretreatment may be required	
Toray	HFS-2020	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	29.0	100 NTU Max	Susan L. Guibert, P.E. Toray Membrane USA, Inc. Mobile: 858.382.2813 E-mail: sue.guibert.h4@mail.toray
	HFU-2020N	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	100	57	29.0	100 NTU Max	
	HFU-2020AN	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	29.0	200 micron prescreen	
	HFUG-2020AN	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	29.0	200 micron prescreen	
	HFU-B2315AN	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	29.0	200 micron prescreen	
	HFUG-B2314AN	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week	120	68	29.0	200 micron prescreen	
Reverse Osmosis/ Nanofiltration													
Various	Various	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week - surrogate WQ parameter (sulfate, TOC, etc.)	Based on specific manufacturer information	Based on specific manufacturer information	Based on vendors specs	Pretreatment is required	Various
Hydranautics	Various	3.0	3.0*	0.0	N/A*	4.0	≤0.1 NTU - CFE	1X Week - surrogate WQ parameter	Site Specific	Site Specific	Site Specific	Pretreatment is required	Hydranautics - A Nitto Denko Company 760-901-2563

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Summary of Accepted Membrane Filtration Skids

Colorado Department of Public Health and Environment - Water Quality Control Division - Engineering Section

Revised October 2022 <https://cdphe.colorado.gov/water-quality>

Manufacturer	Model	Compliance Element/Module	Accepted Flow Rate	Flow Rate Units (gpm, MGD, gallons per day)	Backflow prevention for CIP	Local Contact
Microfiltration/Ultrafiltration						
Dow Water and Process Solutions	IntegraFlo-74 and 102 Skids	KCM269	Various	N/A	Double block and bleed	Kelly Lange-Haider Dow Water and Process Solutions (952) 897-4311 KPlange-haider@dow.com
	IntegraPac-51 and 77 Skids	KCM269	Various	N/A	Double block and bleed	
DuPont Memcor	XP 3-24L10V	L10V	25,000 - 750,000 must show flux calcs	gallons per day	Double block and bleed	Nick Lucas MISCO Water 303-309-6150 nlucas@miscowater.com
	XP 18-42L20V	L20V			Double block and bleed	
	CP 48-120L20V	L20V	500,000 - 6,000,000 - must show flux calcs	gallons per day	Double block and bleed	
	CP 132-240L20V	L20V			Double block and bleed	
	CPII MR1, MR2, MR4	L40N	175K - 3000K	gallons per day	Double block and bleed	
	XPE 2L10V, XPE 3L10V, XPE 4L10V, XPE 6L10V, XPE 9L10V, XPE 12L10V	L10 V	9, 13.5, 18, 27, 40.5, 54	gpm	Manual Air gap	
Filter Tech Systems Inc.	UFX-1	X-Flow SXL-225	20	gpm	Double block and bleed	Deb Jensen Filter Tech Systems, Inc. 888-287-8292 / 970-254-2855 Deb@filtertechsystems.com
	UFX-2		40	gpm	Double block and bleed	
	UFX-3		85	gpm	Double block and bleed	
	UFX-4		210	gpm	Double block and bleed	
	UFX-5		375	gpm	Double block and bleed	
	UFX-6		585	gpm	Double block and bleed	
	UFX-7		835	gpm	Double block and bleed	
	UFX55-1	X-Flow SXL-55	29	gpm	Double block and bleed	
	UFX55-2		57	gpm	Double block and bleed	
	UFX55-3		143	gpm	Double block and bleed	
	UFX55-4		287	gpm	Double block and bleed	
	UFX55-5		574	gpm	Double block and bleed	
	UFX55-6		918	gpm	Double block and bleed	
	UFX55-7		1147	gpm	Double block and bleed	
	UFX55-8		1434	gpm	Double block and bleed	
Kruger/ Metawater	8R10E	KCM269	3,766,000	gallons per day (80 modules, 20deg C)	Double block and bleed	D.H. Lindsey Co. Douglas Lindsey 304 Inverness Way South, Suite 170 Englewood, CO 80112 303-843-9116
	10R10E	KCM269	4,707,500	gallons per day (100 modules, 20deg C)	Double block and bleed	
Pall Corporation	Aria AP1	Microza	28	gpm	Double block and bleed	Mark Sampson Water Control Corp 303-477-1970 m.sampson@watercontrolcorp.com
	Aria AP2	Microza	49	gpm	Bleed to tank 2 - w/level sensor	
	Aria AP3	Microza	174	gpm	Bleed to tank 2 - w/level sensor	
	Aria AP4	Microza	347 (500)* - starting 2011	gpm	Bleed to tank 2 - w/level sensor	
	Aria AP6	Microza	694	gpm	Bleed to tank 2 - w/level sensor	
	Aria AP6x	Microza	867	gpm	Bleed to tank 2 - w/level sensor	
	Aria AP8	Microza	1388	gpm	Bleed to tank 2 - w/level sensor	



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Innovate Water Technologies	UF 5	Homespring UF211	5,000	gallons per day	Air gap	Jack Barker Innovative Water Technologies 719-254-4426/ 877-567-9310 sales@innovativeH2o.com
	UF 10	Homespring UF211	10,000	gallons per day	Air gap	
	UF 20	Homespring UF211	20,000	gallons per day	Air gap	
	UF 30	Homespring UF211	30,000	gallons per day	Air gap	
	UF 40	Homespring UF211	40,000	gallons per day	Air gap	
	UF 50	Homespring UF211	50,000	gallons per day	Air gap	
	SS 24	Homespring UF211	5,000	gallons per day	Air gap	
	SS 36	Homespring UF211	10,000	gallons per day	Air gap	
SUEZ Water Technologies & Solutions	Z-Pak-350 12 module	ZW-1500-550	260	gpm	Block and bleed (Valves, FV301, 302, 601, 602, 704, and 705)	Grant Macinnis, P.Eng. SUEZ WTS Tel: +1 (720) 855-7296 Mobile: +1 (303) 396-9532 grant.macinnis@suez.com
	Z-Pak-350 12 module	ZW-1500-600	255	gpm	Block and bleed (Valves, FV301, 302, 601, 602, 704, and 705)	
	Z-Pak-350 24 module	ZW-1500-550	520	gpm	Block and bleed (Valves, FV301, 302, 601, 602, 704, and 705)	
	Z-Pak-350 24 module	ZW-1500-600	510	gpm	Block and bleed (Valves, FV301, 302, 601, 602, 704, and 705)	
WesTech	AltaFilter (other)	HFU-2020N	Various	N/A	Block and Bleed (valves AV-x02A, AV-x02B and AV-x20)	Lindsay Housley, P.E. WesTech 801.290.6404 lhousley@westech-inc.com
	AF18	HFU-2020N	540	gpm	Block and Bleed (valves AV-x02A, AV-x02B and AV-x20)	
	AF22	HFU-2020N	660	gpm	Block and Bleed (valves AV-x02A, AV-x02B and AV-x20)	
	APIII	HFU-2020N	75	gpm	Block and Bleed (valves AV-x02A, AV-x02B and AV-x20)	
	APVI	HFU-2020N	150	gpm	Block and Bleed (valves AV-x02A, AV-x02B and AV-x20)	
	APXII	HFU-2020N	300	gpm	Block and Bleed (valves AV-x02A, AV-x02B and AV-x20)	
Wigen Water Technologies	Not Spec'd case by case	Toray HFS-2020/ HFU-2020N Dow SFD-2880, IntegraFlo-102	None - must verify on each submittal	N/A	Double block and bleed	Michael Bourke Wigen Water Technologies 6500 S. Quebec St, Suite 300 I Centennial, CO 80111 USA T: (303) 350-3086

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