

## Defender® Regenerative Media Filters: The Proven Choice for Superior Water Quality



### NEPTUNE BENSON

Established in 1956, Neptune Benson has proudly served the commercial aquatics industry for over six decades. Our Defender® line of regenerative media filters has become synonymous with the term “RMF” in the industry. With over 20,000 installations in 50 countries, we have the filtration and disinfection experience to help meet your water quality needs, while keeping sustainability and safety of your guests top of mind.

### REGENERATIVE MEDIA FILTRATION

Sand and regenerative media filters both operate on the principle of mechanical filtration. Sand filters trap particles in water throughout the depth of their bed. When the filter becomes dirty, it is cleaned by backwashing, a process that sends considerable amounts of water to drain. RMFs trap particles on the surface of flexible tubes coated with perlite media. When the perlite becomes loaded, RMFs regenerate by bumping, a process in which no water is lost except during periodic media replacement.

### REMOVE PARTICLES DOWN TO 1 MICRON

Defender® filters produce sparkling, crystal clear water by removing particles down to 1 micron more effectively than sand. The difference in water clarity is like night and day. In addition, the dramatic reduction in turbidity improves transmission of UV light, which increases disinfection performance as well.

### UP TO 90% WATER SAVINGS

Instead of backwashing, Defender filters automatically “bump”—regenerating media for a fresh start without wasting water to drain.

- Reduces footprint and operating weight
- Eliminates backwash holding tank

### BENEFITS\*

- Superior Water Clarity
- 90% Water Savings
- 75% Space Savings
- 50% Energy Savings
- 30% Chemical Savings



\*Contact Neptune Benson for a full analysis

## UP TO 50% IN ENERGY, FUEL AND CHEMICAL SAVINGS

By eliminating backwashing, significant operational savings can be achieved by not having to re-heat and chemically re-treat all of the water sent down the drain. Defender filters also operate at lower head pressures, reducing power demand and electrical costs.

## UP TO 75% SPACE AND CONSTRUCTION SAVINGS

The footprint of Defender® filters can be up to 75% smaller than equivalently sized sand filters, saving both space and construction costs.

## COST SAVINGS ANALYSIS

Defender filters reduce water, energy and chemical consumption, which translates into significant savings. Contact us to quantify savings for your facility.

## EXAMPLE SAVINGS ANALYSIS

Water Impact	Sand	Defender
Backwash Volume	1,483,560 gal 5,616 m <sup>3</sup>	88,938 gal* 337 m <sup>3</sup> *
Potable Water (Make-up) Fees (USD)	\$5,192	\$311
Discharge Fees (USD)	\$5,192	\$311
Energy & Fuel Impact		
Pump Power Consumption (kW)	216,569	170,170
Pump Power Cost (USD)	\$13,308	\$10,456
Heating Requirements (Therms)	4,449	489
Heating Costs (USD)	\$4,004	\$240
Chemical Impact		
Chemical Costs (USD)	\$4,451	\$267
<b>Total Costs (USD)</b>	<b>\$32,147</b>	<b>\$11,585</b>

\* Includes 5% of the sand filter backwash volume to account for makeup water

## DEFENDER FILTER SIZES/CONFIGURATIONS

	Model #	Filter Area		Recommended Flow Rate Range		Overall Height		Tank Volume	
		ft <sup>2</sup>	m <sup>2</sup>	.5 - 1.4 gpm/ft <sup>2</sup>	1.22 - 3.42 m <sup>3</sup> /hr/m <sup>2</sup>	in	cm	gal	m <sup>3</sup>
STANDARD	SP-27-48-487	381	35.6	191 - 533	43.4 - 121.8	97.0	247.4	159	.6
	SP-33-48-732	572	53.1	286 - 801	64.8 - 181.6	103.25	262.2	250	.9
	SP-41-48-1038	812	75.4	406 - 1137	92.0 - 258.0	104.75	266.6	441	1.7
	SP-49-48-1548	1211	112.5	606 - 1695	137.3 - 384.8	109.25	277.5	615	2.3
	SP-55-48-2076	1625	151.0	813 - 2275	184.2 - 516.4	110.50	280.5	841	3.2
ASSERO	SP-29-36-200	117	10.9	59 - 164	13.3 - 37.3	80.25	204	181	.7
	SP-29-36-250	146	13.6	73 - 204	16.6 - 46.5	80.25	204	181	.7
	SP-29-36-300	175	16.3	88 - 245	19.9 - 55.7	80.25	204	181	.7
	SP-29-36-350	204	19.0	102 - 286	23.2 - 65.0	80.25	204	181	.7
	SP-29-36-400	234	21.7	117 - 328	26.5 - 74.2	80.25	204	181	.7
	SP-29-36-450	263	24.5	132 - 368	29.8 - 83.4	80.25	204	181	.7
	SP-29-36-500	294	27.3	147 - 412	33.3 - 93.4	80.25	204	181	.7

Note 1: Recommended flow range is suggested to optimize performance. The filter is NSF listed for up to 2.0 gpm/sq.ft (4.89 m<sup>3</sup>/hr/m<sup>2</sup>) flow rate. Contact Neptune Benson for applications for higher than the recommended flow range.

Note 2: Tank connection sizes based on velocity not to exceed 10.0 fps (3.0 mps).

Note 3: The required perlite media is based on 1/8" (3 mm) thick cake which is recommended for optimal performance.

Note 4: All Defender Assero models available in automatic configuration.



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Defender RMF makes no claims of disinfection. Turbidity may be caused by factors other than particles.

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