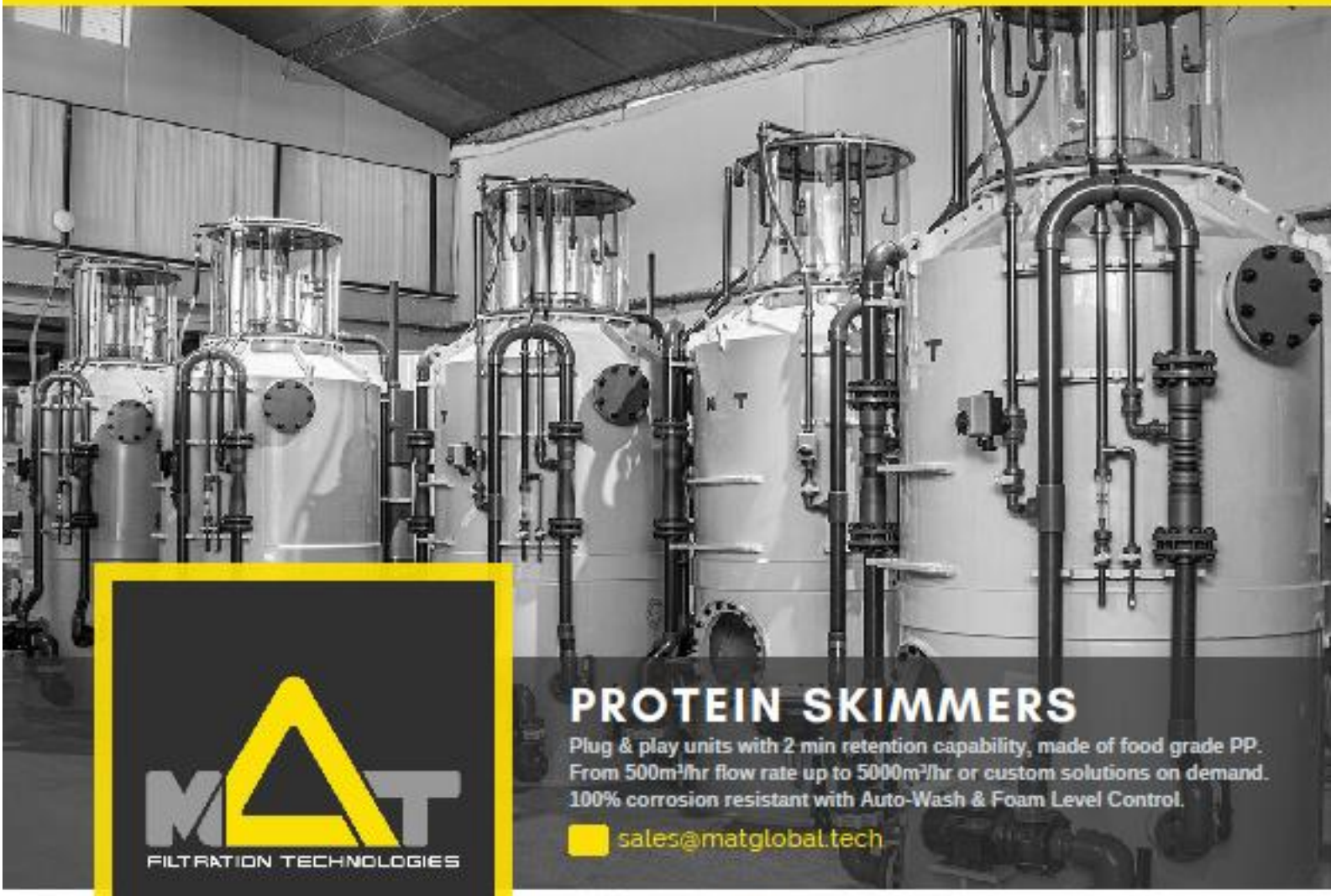


MAT
FILTRATION TECHNOLOGIES

# PROTEIN SKIMMERS

Plug & play units with 2 min retention capability, made of food grade PP.
From 500m³/hr flow rate up to 5000m³/hr or custom solutions on demand.
100% corrosion resistant with Auto-Wash & Foam Level Control.

sales@matglobal.tech





# DESCRIPTION

PS-Protein Skimmer Group forms a range of products designed to provide an efficient means of floatable and dissolved solids control, by removing mechanically, fine, and dissolved organics from water.

The Protein Skimmer, through the fractionation process, minimizes bacteria & microorganisms concentration in close circuit life support systems (CC-LSS) as it has been designed to provide excellent performance, ease of operation & robust fabrication.



Protein Skimmer Marine PSM-62



Protein Skimmer Fresh Water PSF-280

The PS units have the competitive advantages of fabrication quality & ease of operation. With our unique engineered Venturi which infuses the correctly balanced amount of Oxygen and Ozone inside to the PS body, maximum saturation of Ozone in the treated water is achieved.

The operation is based on the mechanical and centrifugal removal of organic compounds while the operation is optimized through ozonized air injection into the treated water.

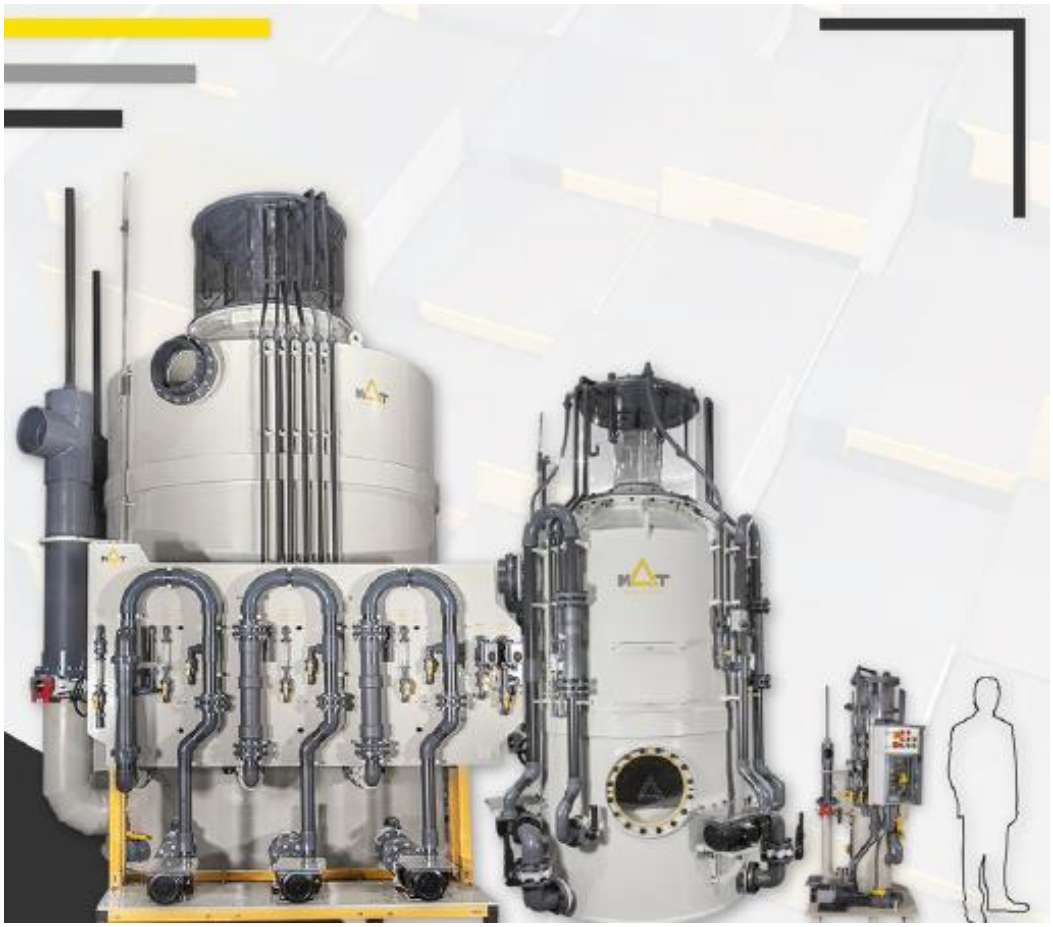
A stream of fine bubbles is formatted via a low-pressure venturi, where proteins and other surface-active compounds adhere and rise up to the top of the skimmer body. This foam of organic coat is discarded out via the effluent pipe to the sewer or to the backwash water treatment.

# DESCRIPTION

The removal of fine particulate material which is attached to the discarded foam is an important effect of protein skimming. MAT Protein Skimmer is specially designed for simple operation in order to achieve the best possible skimming filtration.

The Unit optionally may arrive equipped with Auto-wash System so that the outer cap may be rinsed by fresh water and the inner neck may be rinsed by inside system water, minimizing thus the water loss.

MAT Protein Skimmer units can come optionally with an ORP measurement package as well as a pre-fitted IP67 electrical control panel. As another option, the PLC control and data transfer to a master control can be included to fit in a SCADA or BMS system.



All components and materials are rated to operate under high salinity & condensed humidity environments., n line with stringent safety regulations.

MAT Protein Skimmer Unit is manufactured in-house from Polypropylene, offering robust fabrication, appropriate for heavy-duty use, made to operate in saline and humid conditions.

All units come fully assembled and are FAT-tested for fast & trouble-free installation on site.

# UNIQUE FEATURES

Unique features of Protein Skimmers:

- ✓ Remove mechanically a great percentage of the dissolved organics, proteins, and fish food remaining, and tint as well.
- ✓ Oxygen saturation into water is maximized during ozone and oxygen infusion. Also, ozone dosage is controlled and monitored by the ORP probe which is a part of the optional water quality monitoring package
- ✓ The foam level is easily adjusted and stably retained after the initial fine-tuning.
- ✓ PLC control and data transfer features to master control systems such as SCADA or BMS are optionally available.
- ✓ The electrical panels can be built upon request for any voltage supply different than the standard 400/230V.
- ✓ The fabrication process offers a resistant and robust product.



MAT Venturi



Air and Ozone Infusion



Foam Autowash

# SPECIFICATIONS-Marine Water

| MODEL | Model | PSM-14 | PSM-22 | PSM-62 | PSM-220 | PSM-280 | PSM-360 | PSM-600 | PSM-800 | PSM-1300 |
|---|---|---|---|---|---|---|---|---|---|---|
| Replaced Model | | PS-300 | PS-500 | PS-750 | PS-1000 | PS-1250 | PS-1500 | PS-2000 | PS-2350 | PS-3000 |
| Footprint | Depth [mm] | 800 | 980 | 1070 | 1460 | 1800 | 2295 | 2810 | 2805 | 3755 |
| | Width [mm] | 955 | 1272 | 1540 | 1985 | 2340 | 2340 | 2905 | 3810 | 3850 |
| Diameter | [mm] | 315 | 500 | 750 | 955 | 1250 | 1500 | 2000 | 2175 | 3000 |
| Height | [mm] | 1750 | 1820 | 2280 | 2540 | 2980 | 3633 | 3840 | 3865 | 4540 |
| Installed Power | [kW] | 0,45 | 0,68 | 0,71 | 0,97 | 1,9 | 3,45 | 4,5 | 4,5 | 11 |
| Basic Unit Total Electric Consumption | [kWh] | 0,32 | 0,48 | 0,5 | 0,68 | 1,3 | 2,52 | 3,33 | 3,33 | 8,8 |
| Supply Voltage (50Hz) | [V] | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400 | 3~400 | 3~400 |
| Inlet Size | [mm] | 63 | 75 | 110 | 160 | 200 | 225 | 315 | 355 | 400 |
| Inlet Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Inlet Level | [mm] | 1196 | 1165 | 1500 | 1590 | 1778 | 2300 | 2185 | 2110 | 2723 |
| Outlet Size | [mm] | 75,00 | 90,00 | 140,00 | 225,00 | 250,00 | 280,00 | 315,00 | 400,00 | 400 |
| Outlet Qty | pcs | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Outlet Level | [mm] | 1236 | 1205 | 1518 | 1585 | 1845 | 2259 | 2179 | 2340 | 2560 |
| Body Volume | [m³] | 0,09 | 0,24 | 0,71 | 1,29 | 2,74 | 4,5 | 8,09 | 11 | 20,5 |
| Minimum-Maximum operation water level | [mm] | 1275-1533 | 1353-1631 | 1705-2010 | 1949-2254 | 2230-2605 | 2806-3156 | 2922-3372 | 2095-3305 | 3665-4065 |
| Foam Collector effluent connection size | [mm] | 50 | 50 | 50 | 63 | 63 | 63 | 90 | 90 | 90 |
| Max Flow Rate | [m³/hr] | 15 | 22 | 62 | 220 | 280 | 360 | 600 | 819 | 1300 |
| Max flow Dwell Time | [second] | 22 | 38 | 21 | 35 | 59 | 45 | 49 | 48 | 35 |
| @1 min Dwell Time Flow Rate | [m³/hr] | 5,4 | 14,4 | 42,6 | 77,4 | 164,4 | 270 | 485,4 | 660 | 1230 |
| @1.5 min Dwell Time Flow Rate | [m³/hr] | 3,6 | 9,6 | 28,4 | 51,6 | 109,6 | 180 | 323,6 | 440 | 819,6 |
| @2 min Dwell Time Flow Rate | [m³/hr] | 2,7 | 7,2 | 21,3 | 38,7 | 82 | 135 | 242,7 | 330 | 614,7 |
| Dry weight | [kg] | 82 | 102 | 160 | 254 | 355 | 680 | 810 | 1100 | 1750 |
| Operational Weight | [kg] | 172 | 400 | 920 | 1650 | 3200 | 5300 | 9500 | 13500 | 25000 |
| Body Material | | PP | PP | PP | PP | PP | PP | PP | PP | PP |
| Venturi Pump Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Venturi Pump Model | | 44/8 | 44/12 | 21-40/54H G | 21-40/58H G | 21-50/43 | 21-81/33 | 21-81/34 | 21-81/34 | CMO-N 65-160 |
| Nominal Air Suction | [Nm³/hr] | 2 | 2 | 4 | 6 | 18 | 23 | 32 | 32 | 85 |

# SPECIFICATIONS-Marine Water

| OPTIONAL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Electrical Control Panel** | | optional | optional | optional | optional | optional | optional | optional | optional | optional |
| **Electrical Control Panel Footprint** | | 650x600x1832 | 275x675x770 | 275x675x770 | included in unit | included in unit | included in unit | included in unit | included in unit | included in unit |
| **Fom Collector Autowash** | Valve Type | Solenoid | Solenoid | Solenoid | Solenoid | Motorized | Motorized | Motorized | Motorized | Motorized |
| **External Fresh Water Line Valve For Autowash option** | Valve Type | Motorized | Motorized | Motorized | Motorized | Motorized | N/a | N/a | N/a | N/a |
| **Overflow Switch** | | N/A | optional | optional | optional | optional | optional | optional | optional | optional |
| **ORP Control** | | optional | optional | optional | optional | optional | optional | optional | optional | optional |
| **Foam Level Automation** | | N/A | N/A | N/A | optional | optional | optional | optional | optional | optional |
| **Operational Platform** | | N/A | N/A | N/A | N/A | N/A | optional | optional | optional | optional |
| **Passive Ozone destruct** | | optional | optional | optional | optional | optional | optional | optional | optional | optional |
| **ORP Probe Wet-Tap** | | optional | optional | optional | optional | optional | optional | optional | optional | optional |

# SPECIFICATIONS-Fresh Water

| MODEL | Model | PSF-22 | PSF-62 | PSF-220 | PSF-280 | PSF-360 | PSF-600 | PSF-800 | PSF-1300 |
|---|---|---|---|---|---|---|---|---|---|
| Replaced Model | | PS500F | PS750F | PS1000F | PS1250F | PS1500F | PS2000F | PS2350F | PS3000F |
| Footprint | Depth [mm] | 1060 | 1250 | 1900 | 1850 | 2000 | 2350 | 2900 | 3500 |
| | Width [mm] | 1160 | 1500 | 1370 | 2350 | 2800 | 3350 | 4000 | 4770 |
| Diameter | [mm] | 500 | 750 | 955 | 1250 | 1500 | 2000 | 2175 | 2885 |
| Height | [mm] | 1820 | 2280 | 2540 | 2980 | 3633 | 3840 | 3865 | 4540 |
| Installed Power | [kW] | 1,1 | 1,33 | 3,5 | 3,5 | 4,55 | 11 | 11 | 15 |
| Basic Unit Total Electric Consumption | [kWh] | 0,75 | 1 | 3 | 3 | 4 | 8,4 | 8,4 | 13,8 |
| Supply Voltage (50Hz) | [V] | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 |
| Inlet Size | [mm] | 75 | 110 | 160 | 200 | 225 | 315 | 355 | 400 |
| Inlet Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Inlet Level | [mm] | 1165 | 1500 | 1590 | 1778 | 2300 | 2185 | 2110 | 2723 |
| Outlet Size | [mm] | 90,00 | 140,00 | 225,00 | 250,00 | 280,00 | 315,00 | 400,00 | 400,00 |
| Outlet Qty | pcs | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Outlet Level | [mm] | 1252 | 1518 | 1585 | 1845 | 2259 | 2179 | 2340 | 2560 |
| Body Volume | [m³] | 0,24 | 0,71 | 1,29 | 2,74 | 4,5 | 8,09 | 11 | 20,5 |
| Minimum-Maximum operation water level | [mm] | 1353-1631 | 1705-2010 | 1949-2254 | 2230-2605 | 2806-3156 | 2922-3372 | 2095-3305 | 3665-4065 |
| Foam Collector effluent connection size | [mm] | 50 | 50 | 63 | 63 | 63 | 90 | 90 | 90 |
| Max Flow Rate | [m³/hr] | 22 | 62 | 220 | 280 | 360 | 600 | 819 | 1300 |
| Max Flow Dwell Time | [second] | 38 | 41 | 21 | 35 | 45 | 49 | 48 | 35 |
| @1min Dwell Time Flow Rate | [m³/hr] | 14 | 43 | 77 | 164,4 | 270 | 485 | 660 | 1229 |
| @1.5 min Dwell Time Flow Rate | [m³/hr] | 9,6 | 28,4 | 51,6 | 109,6 | 180 | 323,6 | 440 | 819,6 |
| @2 min Dwell Time Flow Rate | [m³/hr] | 7 | 21 | 39 | 82 | 135 | 243 | 330 | 615 |
| Dry Weight | [kg] | 137 | 210 | 330 | 420 | 730 | 975 | 1185 | 2150 |
| Operational Weight | [kg] | 435 | 970 | 1730 | 3265 | 5365 | 9800 | 13585 | 25000 |
| Body Material | | PP | PP | PP | PP | PP | PP | PP | PP |
| Venturi Pump Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| Venturi Pump Model | | 21-40/54H | 21-41/55 | 21-80/33 | 21-80/33 | 21-80/34 | CMO-N 65-160 | CMO-N 65-160 | CDI-QL 125-100-200 |
| Nominal Air Suction | [Nm³/hr] | 6,5 | 9,5 | 15 | 15 | 30 | 70 | 70 | 140 |

# SPECIFICATIONS-Fresh Water

| OPTIONAL | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Electrical Control Panel** | | optional | optional | optional | optional | optional | optional | optional | optional |
| **Fom Collector Autowash** | Valve Type | Motorized | Motorized | Motorized | Motorized | Motorized | Motorized | Motorized | Motorized |
| **External Fresh Water Line Valve For Autowash option** | Valve Type | Motorized | Motorized | Motorized | Motorized | N/a | N/a | N/a | N/a |
| **Overflow Switch** | | optional | optional | optional | optional | optional | optional | optional | optional |
| **ORP Control** | | optional | optional | optional | optional | optional | optional | optional | optional |
| **Foam Level Automation** | | N/A | N/A | optional | optional | optional | optional | optional | optional |
| **Operational Platform** | | N/A | N/A | N/A | N/A | optional | optional | optional | optional |
| **Passive Ozone Destruct** | | optional | optional | optional | optional | optional | optional | optional | optional |
| **ORP Probe Wet-Tap** | | optional | optional | optional | optional | optional | optional | optional | optional |

# SPECIFICATIONS-Fresh Water-Imperial Units

| Protein Skimmer Fresh (PSF) | Model | PSF-22 | PSF-62 | PSF-220 | PSF-280 | PSF-360 | PSF-600 | PSF-800 | PSF-1300 |
|---|---|---|---|---|---|---|---|---|---|
| Replaced model | | PS500F | PS750F | PS1000F | PS1250F | PS1500F | PS2000F | PS2350F | PS3000F |
| Footprint | Depth [ft] | 3' 6" | 4' 1" | 6' 3" | 6' 1" | 6' 7" | 7' 9" | 9' 6" | 11' 6" |
| | Width [ft] | 3' 5" | 4' 11" | 6' 6" | 7' 9" | 9' 2" | 10' 12" | 13' 1" | 15' 8" |
| Diameter | [in] | 19 ' 5/8" | 29 ' 4/8" | 37 ' 5/8" | 49 1/8" | 59 " | 78 ' 6/8" | 85 ' 5/8" | 113 ' 5/8" |
| Height | [in] | 75 ' 7/8" | 91 ' 3/8" | 105 ' 1/8" | 10' 2" | 142 ' 7/8" | 145 ' 7/8" | 151 ' 5/8" | 184 ' 2/8" |
| Installed Power | [kW] | 2,5 | 3,3 | 4,5 | 4,5 | 9 | 12 | 12 | 18 |
| Basic Unit Total Electric Consumption | [kWh] | 1,75 | 2,45 | 3,15 | 3,3 | 6,4 | 8,5 | 9 | 13 |
| Supply Voltage (50Hz) | [V] | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400/230 | 3~400 | 3~400 |
| Inlet Size | [in] | 3" | 4" | 6" | 8" | 8" | 12" | 14" | 16" |
| Inlet Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Inlet Level | [ft] | 3' 11" | 4' 11" | 5' 3" | 5' 10" | 7' 7" | 7' 2" | 6' 11" | 8' 11" |
| Outlet Size | [in] | 3 1/2" | 5" | 8" | 10" | 10" | 12" | 16" | 16" |
| Outlet Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Outlet Level | [ft] | 4' 1" | 4' 12" | 5' 2" | 6' 1" | 7' 5" | 7' 2" | 7' 8" | 8' 5" |
| Body Volume | [gal] | 63 | 188 | 341 | 724 | 1189 | 2137 | 2906 | 5413 |
| Minimum-Maximum operation water level | [ft] | 4' 5"-5' 4" | 5' 7"-6' 7" | 6' 5"-7' 5" | 7' 4"-8' 7" | 9' 2"-10' 4" | 9' 7"-11' 1" | 10' 2"-10' 10" | 12'-13' 4" |
| Foam Collector effluent connection size | [in] | 2 ″ | 2 ″ | 2 1/2" | 2 1/2" | 2 1/2" | 3 ″ | 3 ″ | 3 ″ |
| Max Flow Rate | [gpm] | 96,8 | 272,8 | 968 | 1232 | 1584 | 2640 | 3603,6 | 5720 |
| Max Flow Dwell Time | [second] | 38 | 41 | 21 | 35 | 45 | 49 | 48 | 35 |
| @1min Dwell Time Flow Rate | [gpm] | 63 | 187 | 341 | 723 | 1188 | 2136 | 2904 | 5409 |
| @1.5 min Dwell Time Flow Rate | [gpm] | 42 | 125 | 227 | 482 | 792 | 1424 | 1936 | 3606 |
| @2 min Dwell Time Flow Rate | [gpm] | 32 | 94 | 170 | 362 | 594 | 1069 | 1453 | 2706 |
| Dry Weight | [lbs] | 440 | 925 | 1453 | 926 | 3214 | 4293 | 5217 | 9466 |
| Operational Weight | [lbs] | 1915 | 4271 | 7617 | 7198 | 23621 | 43148 | 59813 | 110072 |
| Body Material | | PP | PP | PP | PP | PP | PP | PP | PP |
| Venturi Pump Qty | [pcs] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Venturi Pump Model | | 21-40/54H | 21-40/55 | 21-80/33 | 21-80/33 | 21-80/34 | CMO-N 65-160 | CMO-N 65-160 | CDI-QL 125-100-200 |
| Nominal Air Suction | [Nm³/hr] | 6,5 | 9,5 | 15 | 15 | 30 | 70 | 70 | 140 |

# SPECIFICATIONS-Fresh Water-Imperial Units

| OPTIONAL | Model | PSF-22 | PSF-62 | PSF-220 | PSF-280 | PSF-360 | PSF-600 | PSF-800 | PSF-1300 |
|---|---|---|---|---|---|---|---|---|---|
| Electrical Control Panel | | optional | optional | optional | optional | optional | optional | optional | optional |
| Electrical Control Panel Footprint | | 185x550x770 | 185x550x770 | included in unit | included in unit | included in unit | included in unit | included in unit | included in unit |
| Fom Collector Autowash | Valve Type | Motorized | Motorized | Motorized | Motorized | Motorized | Motorized | Motorized | Motorized |
| External Fresh Water Line Valve For Autowash option | Valve Type | Motorized | Motorized | Motorized | Motorized | N/a | N/a | N/a | N/a |
| Overflow Switch | | optional | optional | optional | optional | optional | optional | optional | optional |
| ORP Control | | optional | optional | optional | optional | optional | optional | optional | optional |
| Foam Level Automation | | N/A | N/A | optional | optional | optional | optional | optional | optional |
| Operational Platform | | N/A | N/A | N/A | N/A | optional | optional | optional | optional |
| Passive Ozone Destruct | | optional | optional | optional | optional | optional | optional | optional | optional |
| ORP Probe Dry-Tap | | optional | optional | optional | optional | optional | optional | optional | optional |

FILTRATION TECHNOLOGIES

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Our continuous effort for direct innovation implementation may lead to product specification and other data changes.

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