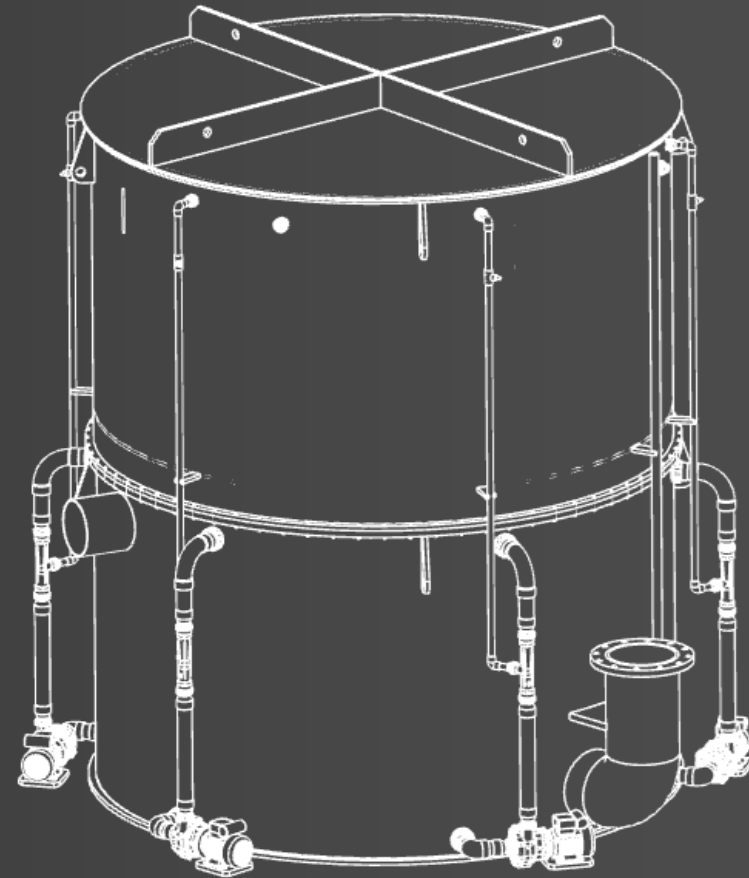




Ratz

Protein skimmer
Catalogue





Ratz

Protein skimmer

Who we are

Ratz Polymertechnik in Germany has been producing protein skimmers for the last 30 years and is especially well known in the aquarium business, supplying skimmers to various larger public aquariums. Now responding to a growing need to provide German quality water treatment technologies to fish farms globally.

CM Aqua Technologies carries a know-how from 30+ years of engineering, production and delivering water treatment solutions mainly in solids removal applications. New technologies for solids separation are designed and implemented to advance the sector.

- Aquaculture
- Public aquariums
- Fish processing factories
- Aquatic exhibitions in ZOO's



Contact

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Ratz

Protein skimmer
Products

Ratz protein skimmers are built in non-corrosive materials in HDPE, Simolux and PVC.

All parts are designed for optimized functionality with respect to user convenience and power consumption.

- **Individual venturi drives**
optimized for salt- and freshwater
- **Large foam chamber**
ensures foam to collapse minimizing water backwash water usage.
- **Counter current principle.**
Enhanced contact between microbubbles and proteins by counter current principle
- **Efficient mixing**
Circular motion inside the skimmer ensures sufficient mixing eliminating dead zones.
- **Foam level control**
Timed or sensor controlled foam level control, with sprinkler system.
- **Ozone injection**
Ready to use with ozone injection point and gas ventilation for ozone destruction.



Ratz PS 500

Volume: 0,33 m³

Max flow: 15 m³/h



Ratz PS 1400

Volume: 3,1 m³

Max flow: 120 m³/h



Ratz PS 600

Volume: 0,50 m³

Max flow: 20 m³/h



Ratz PS 2000

Volume: 6,5 m³

Max flow: 240 m³/h



Ratz PS 750

Volume: 0,80 m³

Max flow: 35 m³/h



Ratz PS 950

Volume: 1,5 m³

Max flow: 60 m³/h



Ratz PS 2500

Volume: 11 m³

Max flow: 460 m³/h



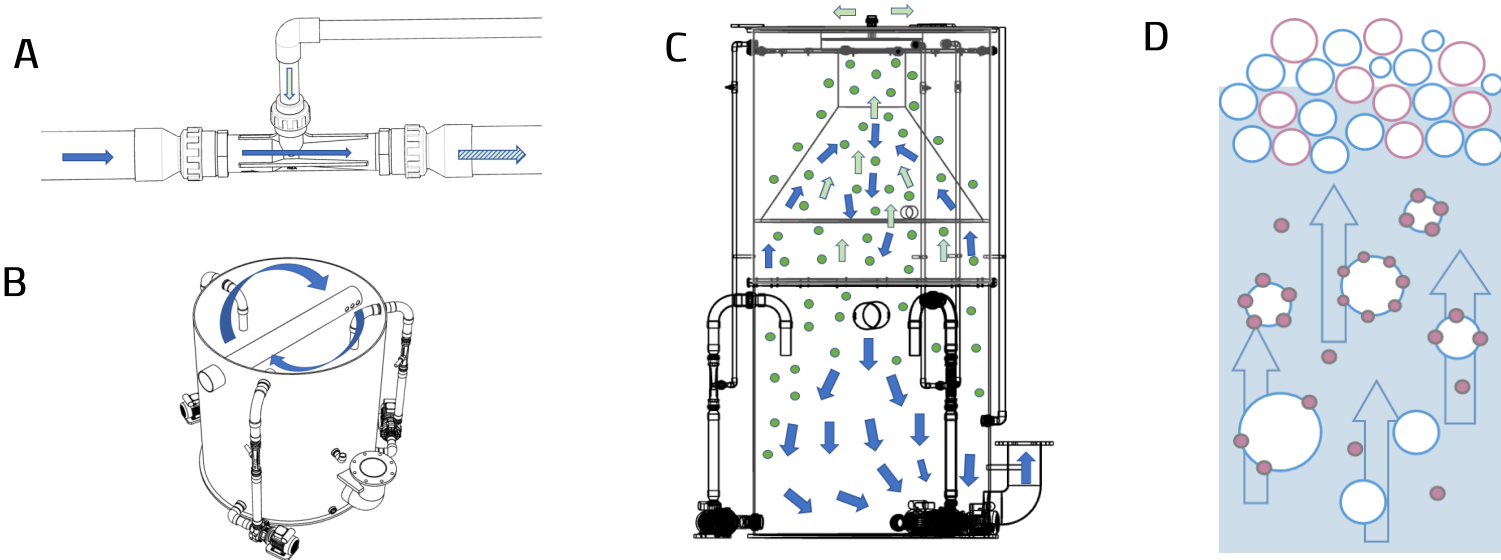
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Protein skimmer

Working principle

The working principle of a protein skimmers is applying the physical and chemical properties of microscopic air bubbles to bind and entrap dissolved proteins. As low density foam rises to the chimney of the protein skimmer, the particles bound in the foam will exit the water column and is collected for final treatment.

Ratz protein skimmers apply venturi drives to efficiently mix atmospheric gas into the water, and create microbubbles for optimal foam formation. Direction of inlet water ensures rotation in the column for optimal mixing and contact between microbubbles and particles.



A: The Ratz Venturi unit secures severe mixing of water and gas.

B: Water is lead through the reaction chamber of the skimmer were a severe mixture of gas and water form a dense foam binding present microparticles and dissolved organic material. Foam escapes through the chimney.

C: The inlet pipe creates circular motion of the inlet water to ensure sufficient mixing.

D: Microbubbles rise through the protein skimmer picking up hydrophobic contaminants.



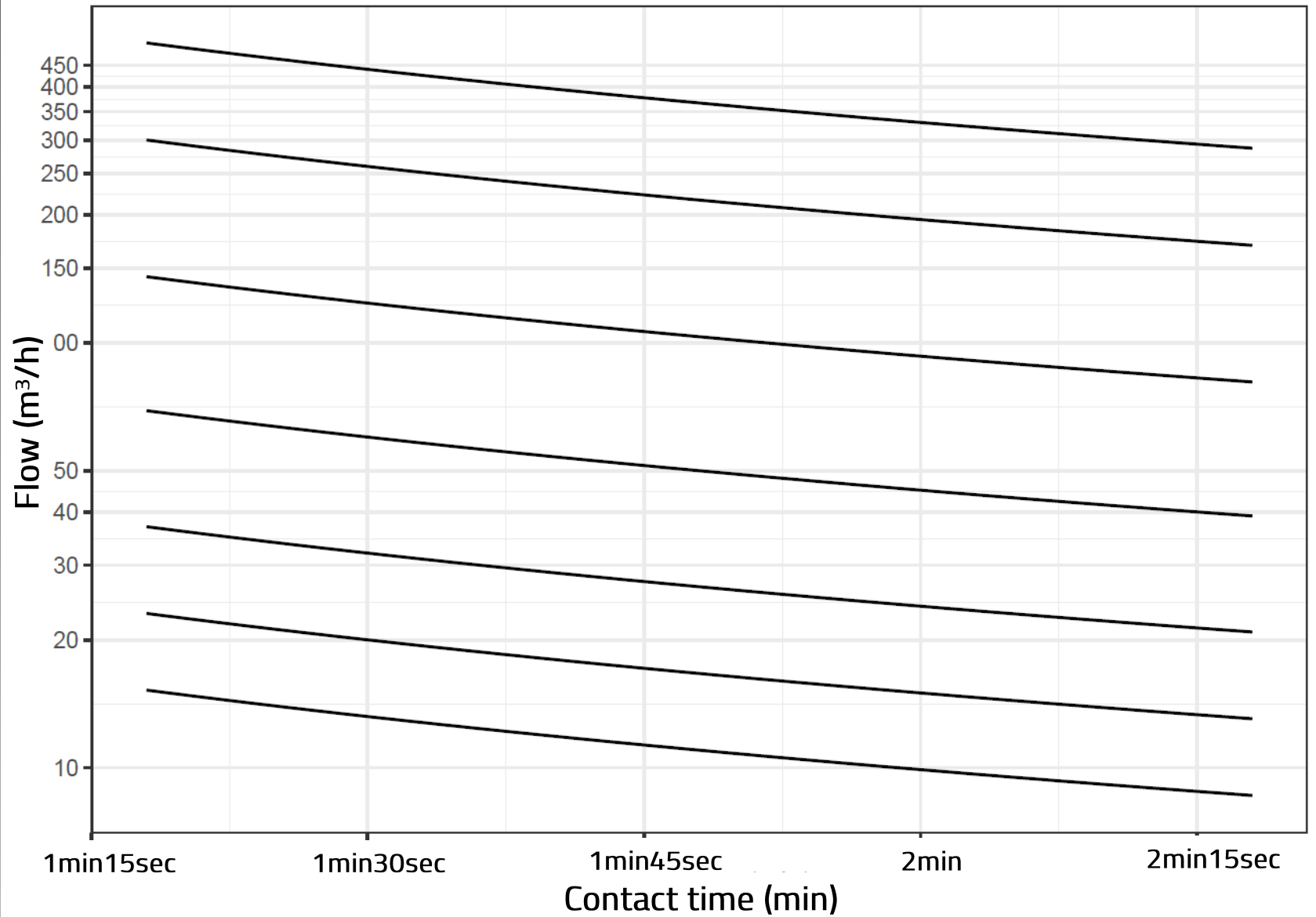
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Protein skimmer

Size chart

Size you Ratz protein skimmer.

When choosing the right protein skimmer size flow and desired contact time must be determined.





Ratz

Protein skimmer

Skimmer specifications

Protein skimmer specifications

Skimmer model	Diameter [mm]	Height [mm]	Volume [m ³]	Footprint [m x m]	Weight net/with water [kg]	Pumps [#]	Pump power consumption [kW]	Operational power consumption [kW]
Ratz 500	500	2300	0,33	0,8 x 0,8	70 / 450	1	0,75	0,75
Ratz 600	600	2300	0,5	1,0 x 1,0	80 / 550	1	0,75	0,75
Ratz 750	750	2300	0,8	1,1 x 1,1	100 / 1000	1	0,75	0,75
Ratz 950	950	2450	1,5	2,0 x 2,0	150 / 1700	2	0,75	1,5
Ratz 1400	1400	3100	3,1	2,5 x 2,5	250 / 3450	3	0,75	2,25
Ratz 2000	2000	3100	6,5	3,0 x 3,0	400 / 8500	4	0,75	3
Ratz 2500	2500	3100	11	3,5 x 3,5	500 / 12000	6	0,75	4,5



Ratz

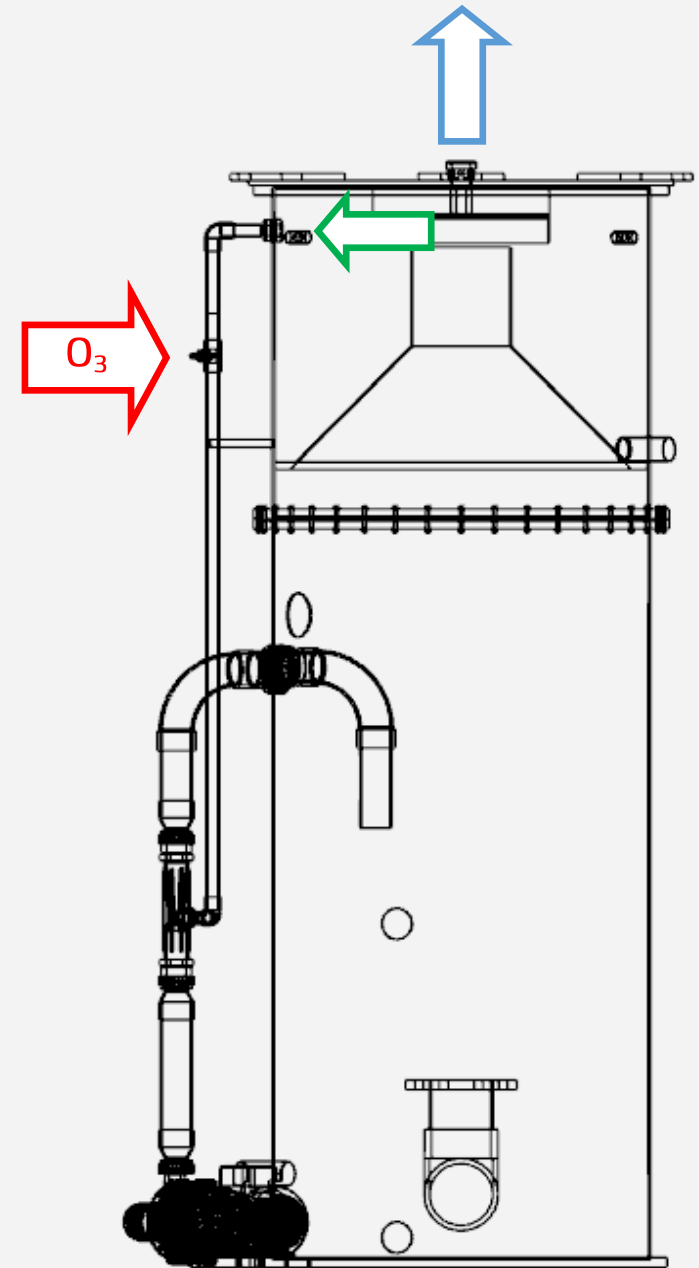
Protein skimmer

Ozone

Ratz protein skimmers can be used as ozone reaction chambers and are designed with gas sealed chamber, ozone injection point (red arrow) and a off-gas ventilation point for excess ozone destruction (blue arrow). Ozone improves coagulation, foam formation and overall skimmer performance.

Off gassed ozone is redirected from the foam chamber back to the injection point of the venturi for optimal usage of added ozone (green arrow).

*Note that off gas ozone destruction must be installed when applying ozone.





Ratz

Protein skimmer

At work



Ratz 2500 protein skimmer with custom build height in operation for side stream of 650 m³/h seawater RAS for Atlantic Salmon.

Installation includes ozone sensor for correct ozone donation.



Ratz 2500 at work at a smolt Ras in Norway



Ratz 1400 protein skimmer with ozone dosage for pre-treatment of intake water at olive flounder farm in South Korea.



Ratz 1400 at work at salmon processing plant in Ireland.



Left: Ratz 950 protein skimmer with ozone dosage in freshwater RAS for Rainbow trout.

Right: Setup with 2 x Ratz 2500 For Smolt RAS in Norway.

