

ULTRAAQUA.COM

WORLDS BEST BIOSECURITY IN AQUACULTURE



AQUACULTURE  
UV SYSTEMS

EFFECTIVE  
DISEASE CONTROL

**ULTRAAQUA**  
UV DISINFECTION SYSTEMS

PHOTO BY  
AQUACULTURE

## BIG PROJECT = BIG UV SYSTEM

At ULTRAAQUA we are specialized in disinfection for aquaculture. This is why some of the biggest RAS builders in the world trust us to deliver UV system to their biggest projects.



### ED WEED - USA

The MR48-350SS UV reactor for Ed Weed is a large L-shaped 48 lamp reactor, capable of disinfecting more than 1500m<sup>3</sup>/h per unit.

### PROFESSIONAL AND CLEAN

We believe that equipment for professional use should be sturdy, functional and clean looking. This is why our equipment is designed with clean and professional functions mind.



### ENGINEERED DETAILS

From hydraulic optimisation to cable management, we at ULTRAAQUA always strive to create the best possible solution. ULTRAAQUA is in the detail.

### STEINVIK - NORWAY

4 pcs of MR56-350SS closed reactors was installed in one of Steinviks fish farms to disinfect the intake water for the facility.



## ED WEED RAS IN USA

3 pcs of MR48-350SS units was installed for Ed Weed - Grand Isle in Vermont. Here ULTRAAQUA's UV systems help keep this large RAS production disease free.

With no diseases in an aquaculture farm, the yearly profit can be up to ten (10) times as high. In many cases the investment in a UV system will have paid for itself in under two years., and sometimes even under a year.



## HIGH DENSITY POLYETHYLENE REACTORS

ULTRAAQUA's HDPE reactors are made to handle applications with residual ozone in the water. HDPE reactors is also suited for outdoor unshielded installations where direct sunlight can cause problems for other materials.

Contact ULTRAAQUA and find out if the High Density Polyethylene UV reactor is right for your application. [ultraaqua@ultraaqua.com](mailto:ultraaqua@ultraaqua.com)

In addition to the PP series ULTRAAQUA also produces HDPE reactors for applications with residual ozone in the water.



The MR100-350SS Channel unit holds 100 pcs of 350w lamps, giving it 35 kW of disinfection power.



## 35 KW IN ONE REACTOR

The footprint of this 35 kW unit is under 1 square meter. This results in a UV unit that can disinfect over 2.600 m<sup>3</sup>/h in a very compact area.

After installing this specific unit the customer experienced a log 4 reduction in bacteria count. As a result this has created a much more stable environment for the fish, which has increased feed rates and overall growth in the population.

# EVERY FISH COUNTS

ULTRAAQUA UV systems have been chosen to increase security from infectious diseases in millions of salmon, sturgeons, eels, turbot, sea bass produced in aquaculture systems worldwide. Here our UV systems help increase FCR, and drastically reduce the use of antibiotics for a better and more stable production.

Diseases such as Infectious Salmon Anaemia (ISA), Infectious Pancreatic Necrosis (IPN) and Amoebic gill disease (AGD) are being prevented with the use of ULTRAAQUA UV systems. This has given the fish farms security and reassurance that their fish are not infected, thereby protecting millions of invested dollars.



PHOTO BY THOMAS BJØRKAN

Norwegian salmon farm



# 1500 SYSTEMS WORLD WIDE FOR AQUACULTURE (RAS)

ULTRAAQUA UV systems continuously disinfect more than 100,000 m<sup>3</sup>/h of water in aquaculture systems worldwide, where millions of salmon, sturgeons, eels, turbot, sea bass etc. are kept safe by our UV systems.

We know that fish farms are not always the most clean and friendly environment for equipment. This is why it is important to choose a quality UV system, which have proved functional over many years of operation. By choosing a ULTRAAQUA UV system you are certain to get one of the most thoroughly tested and reliable UV systems for aquaculture.

In Norway is the world's largest salmon RAS - Belsvik. Numerous Ultraqua UV systems are in operation with a combined capacity of more than 10,000 m<sup>3</sup>/h.

**Our UV systems are constructed to be robust, rigid and easy to service. They are installed all over the world in various fish farms, often in dirty and unfriendly environments.**



# EFFECTIVE DISINFECTION GUARANTEED

ULTRAAQUA  
MEDIUM PRESSURE  
TECHNOLOGY

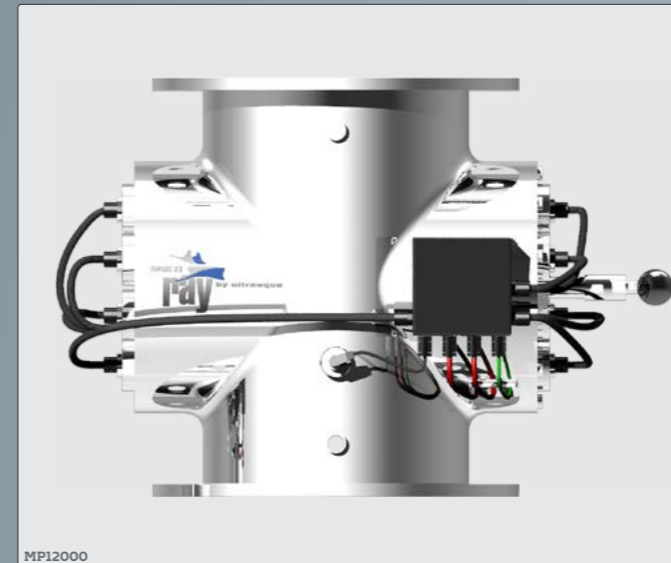
ULTRAAQUA  
LOW PRESSURE  
TECHNOLOGY

## 52,5 KW RAS IN THE SWISS ALPS

Three MR50-350SS Channel units was chosen for biosecurity in a large RAS facility in Switzerland. The three units have a combined disinfection volume of over 3000 m<sup>3</sup>/h supplying various species of fish.

A low pressure lamp system was deliberately chosen because of its high 254nm UV light output, delivering the best power to disinfection conversion. The high efficiency also insures the lowest possible operating cost, resulting in a large annual cost saving for the fish farm.

**3 x MR50-350SS Channel  
Installed in Switzerland  
in a large RAS to insure  
biosecurity for multiple  
species of fish.**



MP12000



MR34-350SS C Adv



MP31000

MP33000

MP60000



MR1-350PP

MR4-220SS T-Line

MR18-350SS Channel

MR42-350PP Channel

### Small footprint - limited space

Ultraaqua MPUV systems provides effective disinfection in all applications. The big advantage of Ultraaqua medium pressure UV-lamps is the extreme UVC energy density. This makes it possible to build compact reactors even for very high water flow rates. When space is limited such as on well boats or as it often is when existing installations are being upgraded, MPUV systems may be the optimum choice. Disregarding space, it may also be cost-efficient to select MPUV technology when operating hours are limited.

### Advanced oxidation (AOP)

Ultraaqua has year long experience with advanced oxidation processes (AOP). Constituents in water (pesticides, pharmaceuticals, geosmin etc.) can be degraded by direct photolysis or in a process in which chemical oxidation by H<sub>2</sub>O<sub>2</sub> or ozone is being boosted by simultaneous hydroxyl radical formation. Contact Ultraaqua engineers for more information on AOP applications.

### Low operating costs

Ultraaqua low pressure UV-technology disinfection systems are designed with no compromises to obtain lowest possible operating costs. Key factors are unmatched lamp life time of 16000 hours and highest possible energy conversion ratios. Robust design and perfectly matched lamp drivers also ensures stable and faultless performance. This philosophy has made Ultraaqua world leading UV-manufacturer within large scale industrial fish farming.

### Powerful sterilization

More than 1000 large scale UV-systems have been sold to RAS globally. This has only been possible because every installed system continuously proofs their efficacy through significantly reduced mortality and improved growth rates on all of these production sites. It should also be noted that Ultraaqua UV-systems hold various performance certificates/approvals (ÖNORM, German DVGW, IMO, US coast guard, Norwegian Veterinary Institute).



## TREATMENT AND CONTROL OF TASTE AND ODOR

The treatment and control of taste and odor (T&O) compounds, Geosmin and Methylisoborneol (MIB), is a priority task in RAS as the compounds typically accumulate up to 400-fold in the lipid tissue, leading to earthy, musty, or muddy tasting fish.

In order to minimize the off-flavor problem, many RAS systems have set up special depuration ponds in which the fish are assumed to release the off flavor compounds during 1-4 weeks before being slaughtered.

Drawbacks of such depurations systems are a high (and sometimes expensive) water consumption, loss of production capacity, lack of feeding (the fish lose weight).

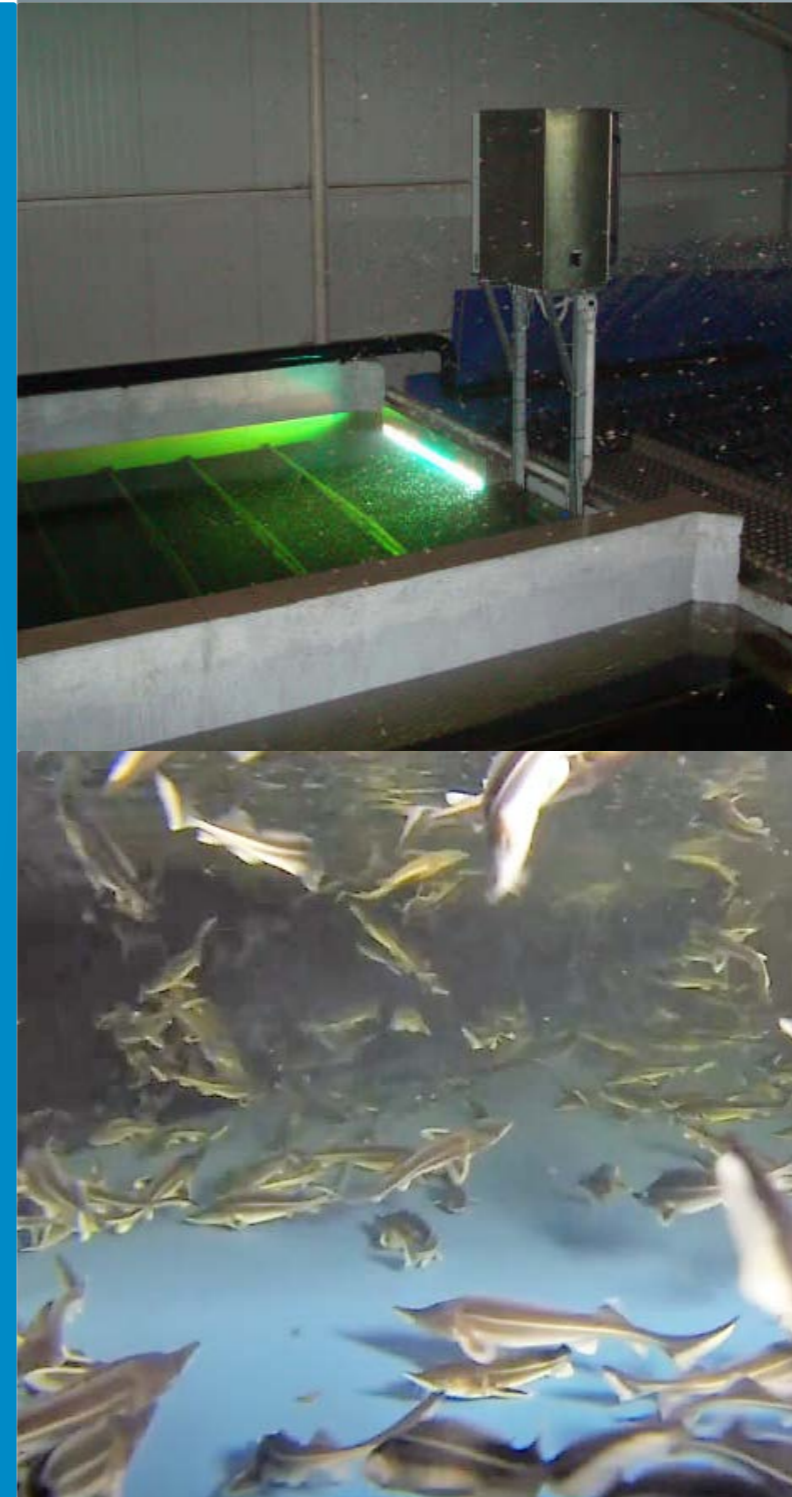
UV system installed in special depuration ponds to release T&O compounds (Geosmin and MIB)

## ADVANCED OXIDATION PROCESS IN RAS

UV-based Advanced Oxidation Processes (AOP), relying on the in-situ generation of hydroxyl radicals for T&O compound degradation, represent the most promising approach for minimizing of off-flavour compounds in RAS systems, thus minimizing the accumulation in fish and need for depuration.

ULTRAAQUA has developed scientifically based design models for integrating AOP process conditions with all known chemical mediators ( $H_2O_2$ ,  $O_3$ ,  $HOCl$ ,  $S_2O_8$ ) in all existing ULTRAAQUA standard low- and medium pressure UV-systems.

ULTRAAQUA can thus offer a dedicated process design according to your needs.





## WORLDS BEST BIOSECURITY IN AQUACULTURE

ULTRAAQUA introduces the new larger polypropylene channel units. These units are based on a design philosophy that have created a UV system with a compact footprint and a functionality equal to no other. The user interface is easy and functional and maintenance is done completely without tools. The UV's extremely small footprints and compact design makes them ideal for on shore sea water farming. Low UV footprint equals more space for fish production.

With the whole construction done in PP (polypropylene) and other non-corrosive materials, we can guarantee that the UV reactors will function in even the most harsh and unfriendly environments, delivering astonishing and reliable disinfection results.

- MR42-350 PP Channel Model features include:**
- Validated UV sensor
  - Dose control
  - Auto cleaning system
  - Modular design

## ENVIRONMENTAL TECHNOLOGY VERIFICATION & NVI CERTIFIED

Our equipment are certified through the European Environmental Technology Verification Program, and is approved by the Norwegian Veterinary Institute.

This means that when you buy an ULTRAAQUA UV system, you can rest assure that you are getting a world-leading product that is tested, safe and reliable. We guarantee state-of-the-art UV technology optimized for efficient and trouble-free operation with timely and qualified technical support by experienced engineers.



### EU ENVIRONMENTAL TECHNOLOGY VERIFICATION

ETV is a validation of environmental technology performance by qualified third parties based on test data generated through testing using established protocols or specific requirements.



**Veterinærinstituttet**  
Norwegian Veterinary Institute

### APPROVED BY THE NORWEGIAN VETERINARY INSTITUTE

Ultraaqua's UV systems is approved for intake water and wastewater disinfection in aquaculture systems and fish processing plants.



### VALIDATED AND TESTED UV SYSTEMS

Ultraaqua's UV systems have passed various tests for validation and approval by among others Önorm, DVGW, AMS and IMO.



### SUPPORT BY EXPERIENCED ENGINEERS

Ultraaqua offers system design and support by UV specialists to ensure the most efficient solution for your specific application.

### SCALE TO FIT

The scalability of ULTRAAQUA UV systems insures "best-fit" solution, that gives you the best price to performance possible.

## VALIDATED DOSE CONTROL

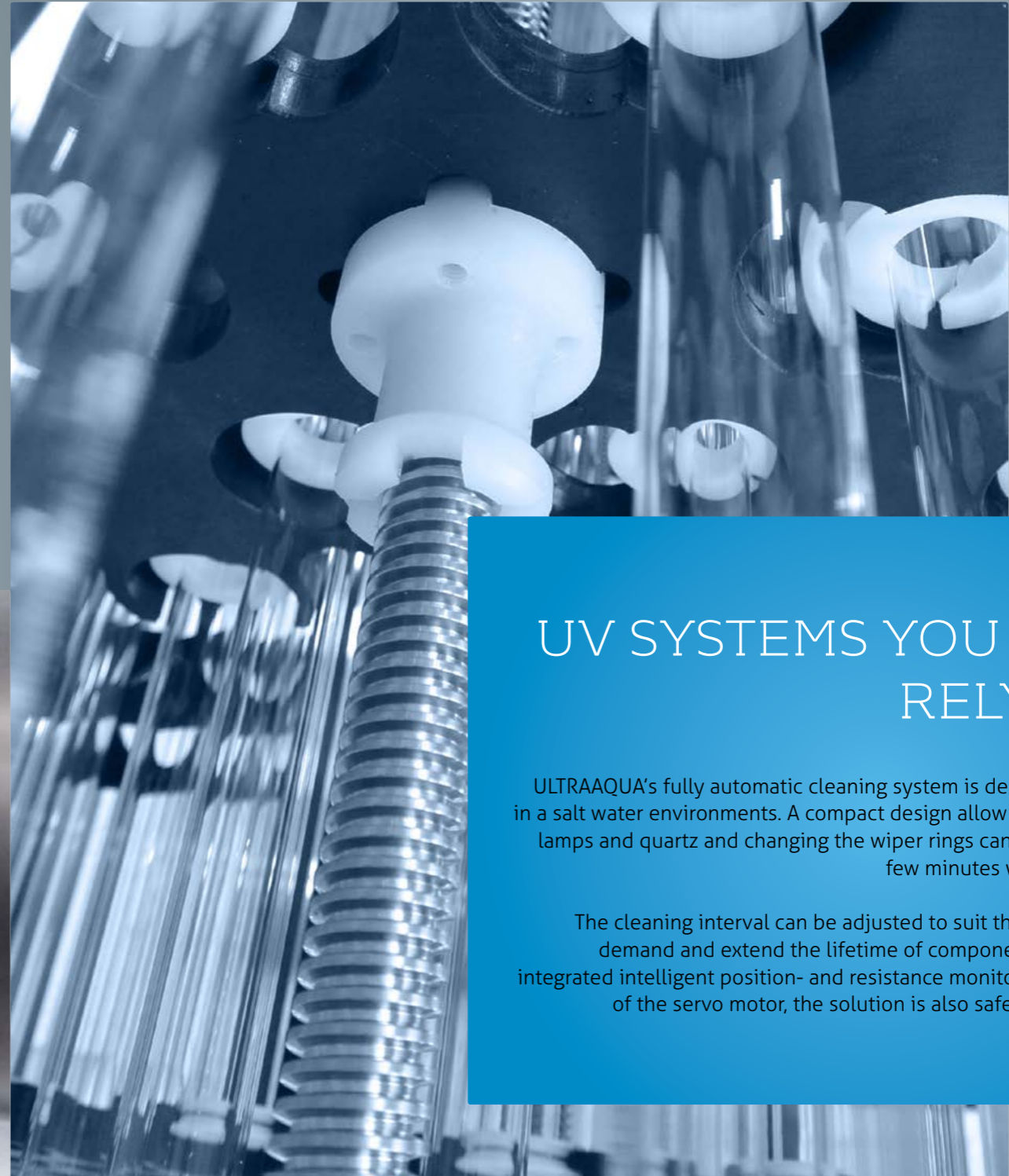
Certified Önorm/DVGW validated UV sensors guarantee secure water disinfection for any situation. Combine this with our UV systems which are approved by the Norwegian Veterinary Institute, and you get the ultimate biosecurity system for your fish farm.

All ULTRAAQUA UV systems are based on the same technology, and by using our validated UV sensors we can guarantee secure and reliable disinfection performance in the complete range.



Validated DVGW and Önorm UV sensor. Approved for dose control.

Automatic cleaning.  
Corrosion resistant materials.



## UV SYSTEMS YOU CAN RELY ON

ULTRAAQUA's fully automatic cleaning system is designed to last in a salt water environments. A compact design allow full access to lamps and quartz and changing the wiper rings can be done in a few minutes without tools.

The cleaning interval can be adjusted to suit the application demand and extend the lifetime of components. With the integrated intelligent position- and resistance monitoring features of the servo motor, the solution is also safe and reliable.



# FUNCTIONAL UV DESIGN

In order to create world-leading products we must know our field in depth and understand what our customers need. At ULTRAAQUA, we have a highly specialized team of Bio-Engineers, Mechanical Engineers and Industrial Designers who design and create UV systems that are effective, easy to operate and user-friendly.

We listen to our customers and do not suggest unnecessary features or try to sell you equipment you do not need, we offer solutions and technical advice that fits your company and your company's projects. If you have a project, where UV is required then send us an e-mail and get a qualified assessment of what is needed.

The company is based on a high level of knowledge and our employees are some of the best engineers in the field. Several engineers have year long experience from construction and operation of RAS



MR32-220SS Channel  
Tilted functionality for low water levels

# RECOMMENDED UV SYSTEMS FOR AQUACULTURE

ULTRAAQUA delivers UV systems for both small and large fish farms. Our products range from 75w single lamp systems suitable for smaller hatching pools, to large 30kW multi-lamp systems for RAS.

## STAINLESS STEEL FOR PIPE INSTALLATION

220 SS Series	MR1-220SS	MR4-220SS	MR8-220SS	MR16-220SS	MR32-220SS	MRXX-220SS
Max flow in m³/h	38	260	350	540	1080	10.000 - ∞
Power	0.25 kW	1.5 kW	2.0 kW	3.0 kW	6.0 kW	∞ kW

350 SS Series	MR1-350SS	MR4-350SS	MR8-350SS	MR16-350SS	MR32-350SS	MRXX-350SS
Max flow in m³/h	58	240	540	1080	1080	10.000 - ∞
Power	0.4 kW	1.5 kW	3.0 kW	6.0 kW	12.0 kW	∞ kW



MR1-220SS



MR4-220SS T-Line

## POLYPROPYLENE FOR PIPE INSTALLATION

SEAWATER OPTIMIZED

220 PP Series	MR1-220PP	MR4-220PP	MR8-220PP	MR16-220PP	MR32-220PP	MRXX-220PP
Max flow in m³/h	35	130	300	540	1080	10.000 - ∞
Power	0.25 kW	1.0 kW	2.0 kW	3.0 kW	6.0 kW	∞ kW

350 PP Series	MR1-350PP	MR4-350PP	MR8-350PP	MR16-350PP	MR32-350PP	MRXX-350PP
Max flow in m³/h	53	210	480	1080	1080	10.000 - ∞
Power	0.4 kW	1.5 kW	3.0 kW	6.0 kW	12.0 kW	∞ kW



MR1-75PP



MR8-220PP w Auto-clean

## STAINLESS STEEL FOR CHANNEL INSTALLATION

220 SS C Series	MR4-220SS C	MR6-220SS C	MR8-220SS C	MR16-220SS C	MR32-220SS C	MRXX-220SS C
Max flow in m³/h	175	260	350	540	1080	10.000 - ∞
Power	1.0 kW	1.5 kW	2.0 kW	3.0 kW	6.0 kW	2.0 kW

350 SS C Series	MR4-350SS C	MR6-350SS C	MR8-350SS C	MR16-350SS C	MR32-350SS C	MRXX-350SS C
Max flow in m³/h	280	420	560	1080	1080	10.000 - ∞
Power	1.5 kW	2.2 kW	3.0 kW	6.0 kW	12.0 kW	∞ kW



MR18-350SS C w. Auto-Clean



MR34-350SS C w. Auto-Clean

## POLYPROPYLENE FOR CHANNEL INSTALLATION

SEAWATER OPTIMIZED

220 PP C Series	MR4-220PP C	MR6-220PP C	MR8-220PP C	MR16-220PP C	MR32-220PP C	MRXX-220PP C
Max flow in m³/h	175	260	350	540	1080	10.000 - ∞
Power	1.0 kW	1.5 kW	2.0 kW	3.0 kW	6.0 kW	∞ kW

350 PP C Series	MR4-350PP C	MR6-350PP C	MR8-350PP C	MR16-350PP C	MR32-350PP C	MRXX-350PP C
Max flow in m³/h	280	420	560	1080	1080	10.000 - ∞
Power	1.5 kW	2.2 kW	3.0 kW	6.0 kW	12.0 kW	∞ kW



MR4-220PP C



MR42-350PP C w. Auto-Clean

- DOSE CONTROL CAN BE APPLIED TO ALL MODELS
- ALL MODELS USE VALIDATED UV SENSORS
- EFFECTIVE FOR DISEASE CONTROL

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UV DISINFECTION SYSTEMS