

Aquarius® UV

Ballast water management system

PRODUCT LEAFLET



As international ballast water regulations come into force the Wärtsilä Aquarius® UV ballast water management system delivers compliance in globally encountered environmental conditions. The proven treatment technology incorporates robust features covering operation, maintenance and through life support, ensuring a low risk path to both retrofit and compliance.

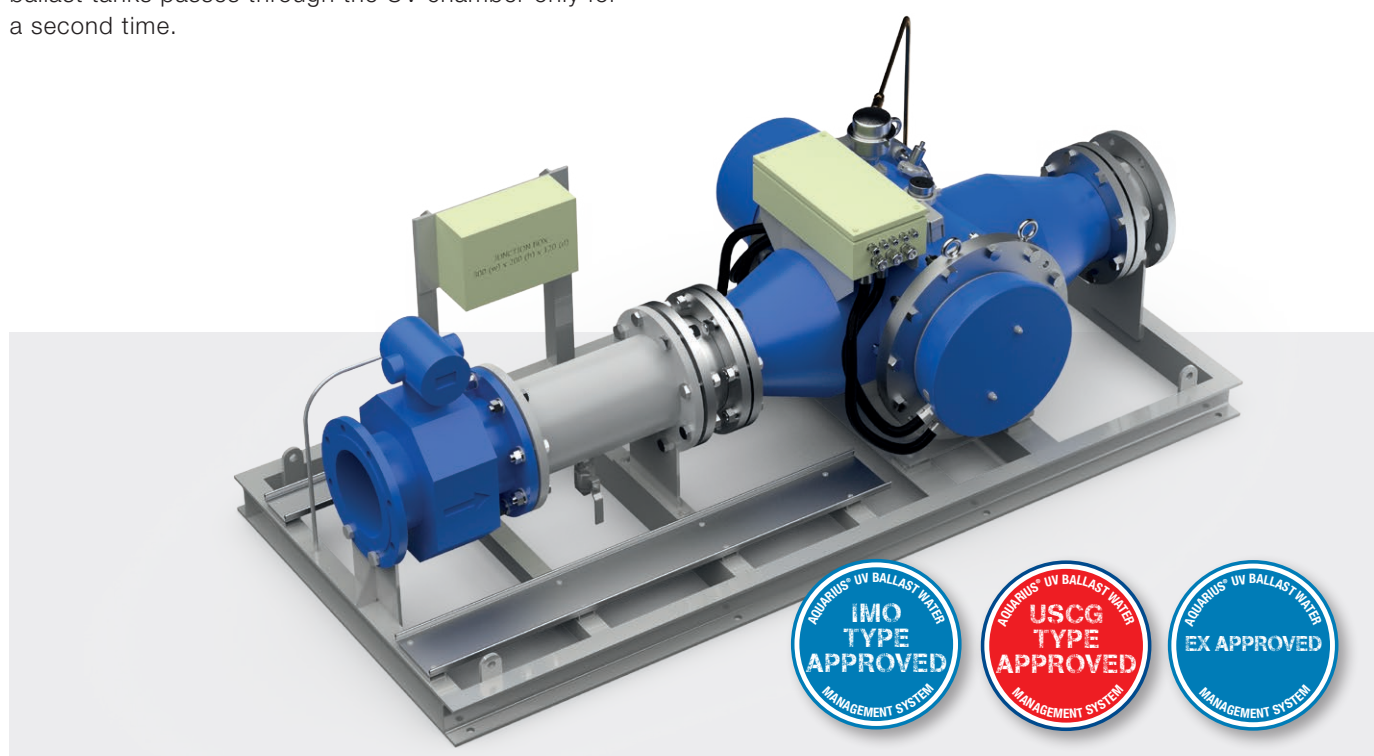
TECHNICAL OVERVIEW

Aquarius® UV is a ballast water management system, providing a safe, flexible and economical process for the treatment of ballast water.

Ballast water treatment with the Aquarius® UV system is achieved through a simple and efficient two stage process. Upon uptake the sea water is first passed through a back washing filter (1st Stage). The filtered sea water then passes through a UV chamber (2nd stage) where ultra-violet light is used to disinfect the water prior to entering the ballast tank. On discharge, water from the ballast tanks passes through the UV chamber only for a second time.

FEATURES & BENEFITS

- IMO & USCG Type approved system
- Flexible integration for retrofitting
- No active substances, no salinity limit
- Intelligent PLC control ensuring safe, automatic and economical operation
- Dedicated BWMS training programme at Wärtsilä land and sea academy
- Explosion proof available for Zone 1 installations



WEIGHTS & DIMENSIONS

Aquarius® UV System	Capacity Range (m³/h)	Filter Loose				UV - Loose (vertical)				Power Panel					Total Weight (kg)	Power (kW)	Total Footprint (m²)
		Dimensions (m)			Weight (kg)	Dimensions (m)			Weight (kg)	Dimensions (m)			QTY	Weight (kg)			
		L	W	H		L	W	H		L	W	H					
AQ-125-UV	12.5 – 125	0.8	0.5	2.3	330	0.8	0.5	0.9	125	1.2	0.5	1.4	1	200	865	19	1.7
AQ-300-UV	30 – 300	1.0	0.7	2.3	510	1.0	0.7	1.3	285	1.2	0.5	1.8	1	350	1,405	48	2.3
AQ-500-UV	50 – 500	1.0	0.7	3.0	885	1.0	0.7	1.3	320	1.2	0.5	2.0	1	450	1,765	63	2.3
AQ-750-UV	75 – 750	1.3	1.1	3.3	1,460	1.2	0.7	1.3	490	1.2	0.5	2.0	2	400+350	2,860	93	3.8
AQ-1000-UV	100 – 1000	1.3	1.1	3.3	1,600	1.2	0.7	1.3	490	1.2	0.5	2.0	3	450	3,550	100	4.4

NOTE: for single systems with capacity above 1000m³/h, see Aquarius® EC

OPERATING PRINCIPLE

PROVEN FILTRATION

During uptake ballast water passes through a screen filter. The filter removes particulates, sediments, zooplankton and phytoplankton over 40 micron. Automatic backwashing ensures and maintains filtration efficiency.

ROBUST UV TREATMENT

Filtered ballast water is directed into a disinfection chamber where medium pressure ultraviolet lamps, set up in cross flow arrangement, deliver UV irradiation to achieve disinfection. Treated ballast water is then directed to the ballast tanks.

Lamps are fitted with an automatic wiper system which prevents fouling and the accumulation of deposits on lamp sleeves ensuring maximum performance at all times.

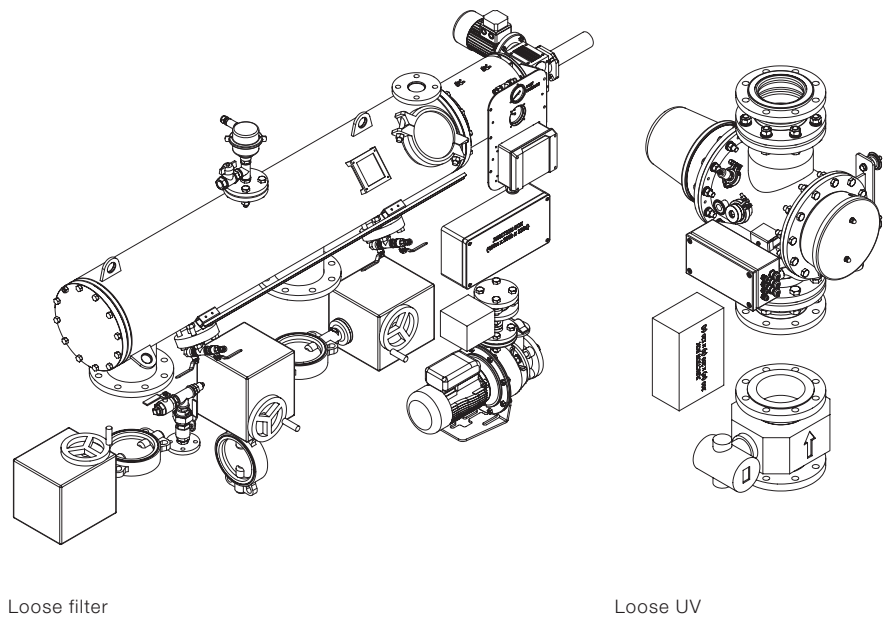
UV light intensity is continuously monitored during system operation to ensure that the desired dose for maximum treatment efficiency is achieved.

During discharge ballast water is pumped from the ballast tanks back through the UV disinfection chamber for final treatment before being discharged overboard. The filter is bypassed during discharge.

FLEXIBLE SUPPLY OPTIONS

Tailored solutions to fit the need of the vessel overcoming ship specific arrangement and access. Aquarius® UV can be supplied as loose component kits as above, alternatively we offer modular arrangements as well as bespoke single skid design. In-house expertise in retrofit scanning, engineering & commissioning is available via the Wärtsilä Global Services organisation.

Fig.1 Exploded view of loose filter and loose UV



Loose filter

Loose UV

PRESSURE DROP

Normal Operation: 0.3 barg
Backwash Set Point: 0.8 barg

CONTROL PANEL (BULKHEAD MOUNTED)

1000mm Wide x 1000mm High x 300mm Deep
Weight: 110 kg

MATERIALS

UV Chamber: 316 Stainless Steel / 254 SMO
Filter: Epoxy Coated Mild Steel / Duplex 904L Screen
Consumables: None