Alfa Laval PureBallast 3.1 Compact

Ballast water treatment system

Alfa Laval PureBallast 3.1 Compact is a third-generation PureBallast system designed for simple, plug-and-play installation. Like other versions of PureBallast, it is fully automated and uses an enhanced form of UV treatment for the biological disinfection of ballast water. (See the PureBallast 3.1 Compact Flex or PureBallast 3.1 product leaflets for details.)

The system is delivered as a compact module, which comes ready-assembled and mounted on a skid with all necessary equipment and prefabricated pipework. The module is easy to connect and is pre-tested before delivery.

Application

Type approved by IMO and the U.S. Coast Guard (USCG), PureBallast 3.1 Compact is certified for ballast water treatment in all types of water: fresh, brackish and marine. Even in low-clarity water, it provides unmatched biological disinfection performance. When operating in IMO-regulated waters, full-flow treatment is possible where the UV transmittance is as low as 42 %.

PureBallast 3.1 Compact is specifically designed for compact installation and can be configured for flows of 32–300 m^3/h.

Type approvals

- *IMO (USCG upgradeable)*
  PureBallast 3.1 Compact systems have IMO type approval. Note that when comparing IMO type approval certificates for different ballast water treatment systems, certificates issued before 2014 do not state the system limitations. If needed, IMO-certified PureBallast 3.1 Compact systems can be upgraded with USCG type approval at a later date.
- *USCG*
  For vessels that need to discharge ballast in United States waters, PureBallast 3.1 Compact systems with USCG type approval are available. Standard USCG-certified systems have the same capacities as IMO-certified systems, but they may operate at reduced flow in United States waters with very low UV transmittance values. For vessels requiring full flow at all times, high-power USCG-certified (USCG HP) systems are available.

Benefits*

- Minimal system footprint
- Simple installation as a plug-and-play skid
- Certified performance in any type of water: fresh, brackish, marine
- Excellent performance in low-clarity waters
- Effective power management

* *Additional benefits and details can be found in the PureBallast 3.1 Compact Flex or PureBallast 3.1 product leaflets*

Skid components

The following components are incorporated into the PureBallast 3.1 Compact skid:

- *Filter*
  The filter is used during ballasting operations to block the intake of larger organisms and reduce sediment in the ballast water tanks.
- *Reactor*
  Built with long-lasting super-austenitic stainless steel, the reactor comprises the enhanced UV treatment stage responsible for biological disinfection.
- *Compact Cleaning-In-Place (CIP) unit*
  UV lamp performance is safeguarded by an automatic CIP cycle that removes UV-impairing fouling and scaling.

Electrical cabinet

In PureBallast 3.1 Compact, the lamp drive cabinet and control cabinet are integrated into a single electrical cabinet. This cabinet provides power to the UV lamps and features a 7” display with a graphical user interface. The control system can be integrated with onboard automation systems via Modbus, allowing access to all functions through the vessel's Integrated Ship Control System.

Ex placement

PureBallast 3.1 Compact is configured for installation within the safe zone. For placement in the hazardous zone, PureBallast 3.1 can be configured as an Ex system (see separate leaflet).

Capacity range (flow in m^3/h)

PureBallast 3.1 Compact is optimized for the smallest possible footprint in relation to the capacity of the ballast water pumps.

PureBallast 3.1 Compact IMO & USCG	(32)*	85	135		170	250	300
PureBallast 3.1 Compact USCG HP		85		150			

** PureBallast 3.1 Compact/85 system at reduced flow rate*

Electrical cabinet

System for 300 m^3/h (footprint 2.2 m^2)

Technical data

PureBallast 3.1 Compact IMO & USCG		PureBallast 3.1 Compact USCG HP
Power consumption, 32–170 m^3/h	Optimal 11 kW (20 kW at full ramp-up*)	Power consumption, 85 m^3/h
Power consumption, 250/300 m^3/h	Optimal 17 kW (32 kW at full ramp-up*)	Power consumption, 150 m^3/h

** Power consumption can be increased to handle low-clarity water with low UV transmittance.*

Power supply: 400–440 VAC, 50/60 Hz
Working pressure: Max 6 bar (up to 10 bar optional)

Component dimensions

PureBallast 3.1 Compact IMO & USCG			PureBallast 3.1 Compact USCG HP
	Size (mm) (W × D × H)	Net/dry weight (kg)	
Skid, 32/85 m^3/h	1312x680x1745	650/740	
Skid, 135/170 m^3/h	1500x680x1468	785/905	Skid, 85 m^3/h
Skid, 250/300 m^3/h	1500 × 1200 × 2050	1320/1421	Skid, 150 m^3/h
Electrical cabinet, 32–300 m^3/h	954x520x1466	160	Electrical cabinet, 85/150 m^3/h

How to contact Alfa Laval
Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com