



MOBILE BALLAST WATER DISCHARGE TECHNOLOGY

Dimension container	12,2 m x 2,45 m x 2,75 m (LxWxH)	BW processing	Fully automatic and monitored
Treatment capacity	300 m ³ /h	Generator	IMO compliant
UV Power	Below 75 kW/h	Design pressure	10 bar
Effectiveness	Designed for low UV Transmittance	Noise level	Meets highest standards

INVASAVE 300

DAMEN

DAMEN SHIPYARDS GROUP



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Under the International Maritime Organization (IMO) Ballast Water Management Convention (BWMC) ballast water will not be allowed to be discharged unless treated. In addition to the BWMC, other national bodies have introduced regulations in response to national concerns.

Many owners are expected to comply with these regulations by installing an onboard Ballast Water Treatment System. For vessels with few ballast water discharges per year and for old vessels, fitting an onboard unit is a costly investment. Against this background Damen has developed its unique InvaSave Mobile Ballast Water Discharge Technology enabling port based ballast water management.

Damen's proprietary InvaSave Technology only needs treating at the point of ballast water discharge, in contrast to fixed onboard installations that also need to treat ballast water at intake. It is based on continuous fine filtration combined with Ultra Violet treatment. Sludge and sediment is dewatered and compacted in a secondary treatment so it can be safely further processed ashore. Treated ballast water meets at least the ballast water performance standard specified in Regulation D-2 of the Convention.

Damen can deliver the system as a self-sufficient mobile container, which can be put on board of a Damen Ballast Water Treatment Vessel or be moved around the port on a trailer, a pontoon or other types of vessels. Each Damen InvaSave 300 container unit handles 300 m³/h – it's easy to scale up if required by using multiple container units.

The system has been successfully tested in the challenging waters of the Wadden Sea (salt) and the IJsselmeer (fresh) in the Netherlands. The system is undergoing type approval testing during the course of 2014. IMO type approval is expected to be obtained beginning 2015 and patent is pending.

Please contact us at green@damen.com to discuss the solutions that suits you best.



A SELF-SUFFICIENT MOBILE CONTAINER – ON A TRAILER, PONTOON OR DAMEN BALLAST WATER TREATMENT VESSEL



The container contains the following compartments:

- Power generation room with an air cooled generator
- Treatment & Control room



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ONE STOP RETROFIT SERVICE

Damen also offers a one stop shop Ballast Water Treatment Retrofit Service. Installation of a BWTS can be done at one of our Damen shipyards conveniently located worldwide. We can also install a system at a location of your choice or even during operation. Our experts use 3D scan techniques to create a custom engineering package to modify the vessel with the most economic, high quality Ballast Water Treatment System and will assure your system is ready on time. We work with selected preferred BWTS suppliers in order to provide competitive efficient retrofit packages. Of course we can also install our customers' system of choice.



BENEFITS OF INVASAVE 300:

- Treatment in ports is more cost efficient for certain trades and ship types
- No downtime for installation and maintenance as with on board treatment units
- Increased reliability due to redundancy
- Enables contingency/emergency measures in ports in case on board treatment systems fail
- Self-sufficient, independent of external power supply and pumping capacity
- Better compliance monitoring
- Application of treatment technology unrestricted by space, pressure drop and power requirements.
- A reliable solution for both ports and operators
- Only requires fitting a deck connection at a fraction of the cost of a full BWT retrofit
- Suitable for seawater, freshwater and brackish water
- Chemical free technology