

Ship & Offshore

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Type approvals and functionality may tip scales

BALLAST WATER TREATMENT The shipping industry is poised for the Ballast Water Management Convention's imminent entry into force and the rush of orders for ballast water treatment systems sure to follow. Type approvals and functionality will likely be decisive selling points. Eventually, the market will determine which systems work and survive, writes Klaus Dammann, head of sales for ballast water treatment systems at Zeppelin Power Systems, a leading provider of drive, propulsion, traction and energy systems.



Optimarin BWTS (here a solution for 1,000m³/h) with flexible and easy-to-implement system components

With India now moving towards ratification of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), and Argentina, Indonesia and Italy having indicated their intent to do so too, there is no doubt that the convention will soon have sufficient ratifications to enter into force, expected as early as 2016. This was also the consensus at the 68th session of the Marine Environment Protection Committee (MEPC 68) of the International Maritime Organization (IMO) in May.

So far 44 states, representing a combined tonnage of 32.86% out of the required 35% of the world's merchant fleet, have already ratified the convention.

About 50,000 vessels in the existing global fleet will have to install a ballast water treatment system (BWTS) to meet IMO standards as soon as the BWM Convention takes effect. An estimated 25 to 40 retrofits will have to be done worldwide

per day, a mammoth task for manufacturers, yards and also shipowners, and sure to cause serious installation bottlenecks.

Conflicting IMO and USCG regulations?

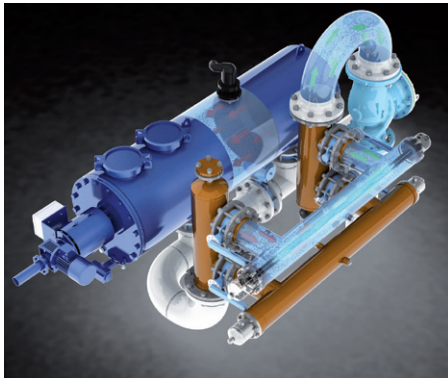
Shipowners should therefore implement a ballast water management plan as soon as possible. Nevertheless, they and many manufacturers still have questions and concerns as the convention is not yet in force and the United States Coast Guard (USCG) has not yet given full type approval to any system even though its regulations went into effect back in December 2013.

Since the US is not a party to the BWM Convention, the USCG has its own, unilateral regulations for vessels operating in US territorial waters (extending 12 miles from shore), requiring installation of USCG type-approved systems. There are no USCG type-approved systems on the market yet, however. Meanwhile, ship operators can install an alter-

nate management system (AMS) for five years of operation or ask for an extension while waiting for a USCG-approved system to become available before the BWM Convention enters into force. In the current situation, many owners are afraid to invest in a BWTS that may not get full USCG type approval and therefore have to be replaced.

On the other hand, manufacturers have to deal with the differing test procedures and USCG requirements that many feel to be stricter than IMO regulations. This has so far deterred most of the 54 IMO type-approved BWTS suppliers from applying for USCG type approval yet.

Despite the understandable concerns of shipowners, there is no reason to panic. At MEPC 68, a "Roadmap for the Implementation of the BWM Convention" was agreed. It states that early movers who implement BWM systems on their vessels now, in accordance with present IMO guidelines (G8), should not be penal- >



Optimarin BWTS – triple cleaning process with filtration and UV irradiation



Example of an Optimarin BWTS – customised building blocks on skid

ised. The development of guidance on contingency measures and the expansion of the trial period are also to be considered.

There is no fundamental conflict between IMO and USCG requirements on ballast water. The most important difference is that the USCG prescribes the killing of organisms and viruses in ballast water whereas the IMO allows their deactivation (viable versus dead organisms). Another difference is the USCG testing mechanisms, which follow a very strict protocol and allow little or no room for interpretation. The USCG prohibits the participation of vendors during any of the testing cycles until the testing process has been completed. This often appears daunting to system developers. A further issue is that laboratories have to be certified by the USCG as independent (there are currently four organisations approved as “independent laboratories”: NSF International, DNV GL AS, Korean Register of Shipping and Control Union Certifications BV).

Shipowners around the world, under the auspices of the Round Table (RT) of International Shipping Organisations (BIMCO, the International Chamber of Shipping, Intercargo and Intertanko), recently urged the USCG to approve as many BWTSs as possible until the BWM Convention has been ratified. The RT is concerned about the small number of system developers preparing to apply for full USCG type approval.

Holistic approaches will secure a spot in the market

Eventually the market will determine which systems actually work and survive. Norway-based Optimarin believes that in the next seven to ten years, about 20 systems will survive. This is based not only on the systems’ features and the type approvals they

obtain, but also on the engineering, service and consulting capacities of the suppliers as soon as the influx of orders for ballast water treatment systems starts with the BWM Convention’s entry into force.

A pioneer in the industry, Optimarin has been developing ballast water treatment systems since 1994 and installed the world’s first BWTS on the cruise ship *Regal Princess* in 2000. Since then the company has sold more than 350 Optimarin Ballast Systems (OBS), 25% of them retrofits. A total of 250 are already installed and more than 50 are in operation.

The systems are based on a mature technology approved by the IMO and USCG (AMS), with certification through DNV GL, BV, MLIT Japan, ABS, RMRS and CCS. OBS uses UV medium-pressure lamps, which are much more effective than systems using UV low-pressure lamps. Combining filtration and high doses of UV irradiation (triple cleaning), the OBS effectively eliminates threats to marine ecosystems in an environmentally friendly manner without the use of chemicals or electrolysis. It is easy to operate and maintain, having a small footprint as well as flexible and easy-to-implement components. The system can be easily upgraded and is designed to comply with even stricter requirements if needed.

Optimarin is certain that its technology already complies with all USCG requirements. Right now it is in the process of conducting full-scale tests that will probably be completed in October. Prior, land-based tests have been very successful, according to the company. The application for official type approval is scheduled for the end of the year.

The installation is conducted without disrupting the ship’s operation. Optimarin is experienced in offshore and specialty

vessels that have installed the OBS at sea, quayside and during dry-docking. Britain’s Royal Navy and companies such as Farstad, Technip, Evergreen and Saga Shipping have already installed the OBS or ordered it for many ships in their fleets or for the entire fleet.

For flexibility in reacting to the enquiries and wishes of their customers, Optimarin and Zeppelin Power Systems have signed an exclusive partnership agreement. Zeppelin Power Systems is responsible for the planning, design, engineering, customisation and supply of the OBS in Germany, Poland, Russia and all CIS countries except Ukraine. Its portfolio ranges from supplying individual components, mounted skids and complete turnkey solutions to handling all after-sales services worldwide.

Another aspect contributing to Optimarin’s and Zeppelin Power Systems’ flexibility is that Optimarin is the only company that has a type approval for three different filter options, so customers can choose the filter they prefer.

Waiting is the wrong decision

All things considered, it is highly recommended that operators contemplate installation of a BWTS promptly. There are many aspects to be evaluated to make the right decision.

First, implementation of a BWTS requires detailed and well-reasoned planning, engineering and installation, which normally takes six to twelve months. This will be a problem as soon as the BWM Convention takes effect and shipowners as well as yards feel forced to act quickly.

There is also no BWTS that suits all types of vessels. The choice of a system is very vessel-specific and depends on the size of the ballast pumps, cargo, trading routes, etc. From a technical standpoint, operators will have to meet the challenges of retrofitting a mature ballast water system without sacrificing too much of the ship’s cargo area.

Another aspect is the need for onboard experience. By dealing with the regulations and technology now, shipowners, crews and shipyards will gain practical experience with the system, its specifications, operation, etc., preparing them well for the day when the convention enters into force.

Shipowners would be well advised not to wait until the last minute, but to start selecting a system with a track record of successful operation that will also be likely to achieve full USCG type approval.