

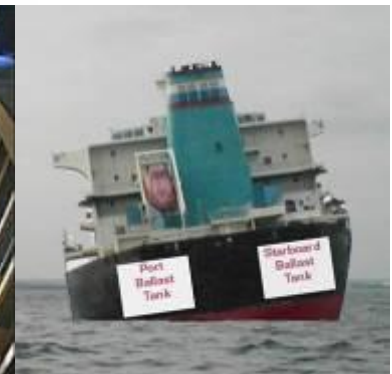
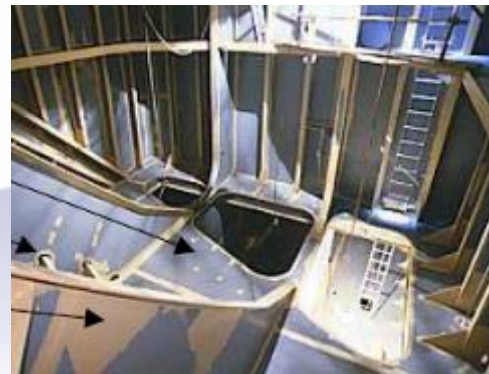
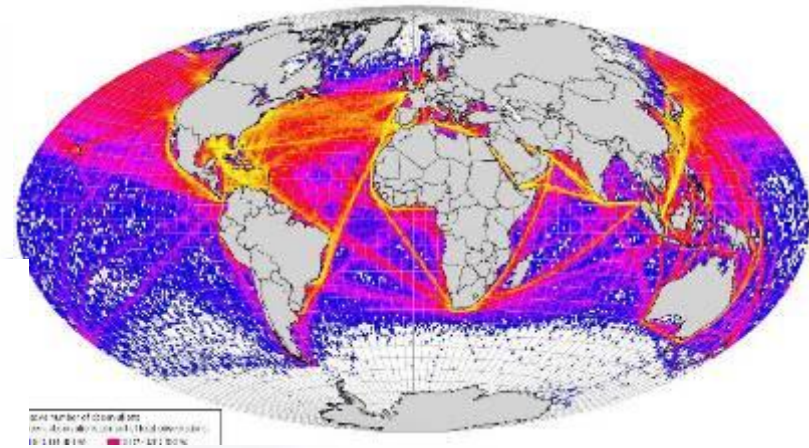
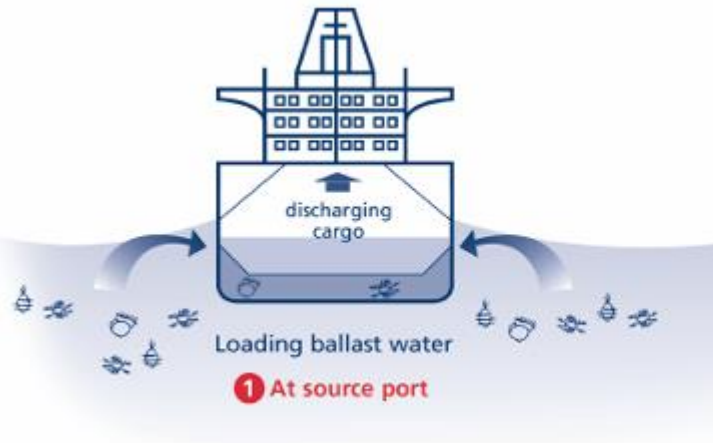




PureBallast Intro

Ballast water

Stabilize ships and adjust for variations in cargo





The spread of aquatic invasive species is by the United Nations recognized as 1 of 4 greatest threats to the world oceans

Legislation is the driver

- Global and domestic regulations are entering into force now to prevent the spread of invasive species



IMO Ballast Water Convention – Global

- Require 30 States & 35 % of World GT
- Status: 60 States & 68 % of World GT
- Entry into force: September 8, 2017!
- 69 Type Approved systems

USA – Domestic regulation

- Regulation in force since December 2013, extension to comply will cease end of 2018
- Three type approves systems
- Alfa Laval received USCG TA December 23rd, 2016

Recent enforcement

Vega Reederei faces Penalty for Ballast Water Discharge

By Joseph R. Fonseca February 14, 2017



cg emblem

The Coast Guard, after an investigation of ballast water discharge violations, initiated civil penalty proceedings against the operator, Vega Reederei GmbH & Co. KG, of the bulk carrier Vega Mars, Feb. 2, 2017.

Investigators found that around Jan. 29, 2017, while moored in Tacoma, ballast water was discharged from the vessel without the use of a Coast Guard approved ballast water management system or other approved means, a violation of the National Invasive Species Act with a maximum penalty for \$38,175.

Vessels equipped with ballast water tanks that operate in the waters of the [United States](#) must employ an approved ballast water management method to prevent the unintentional introduction and spread of aquatic nuisance species.



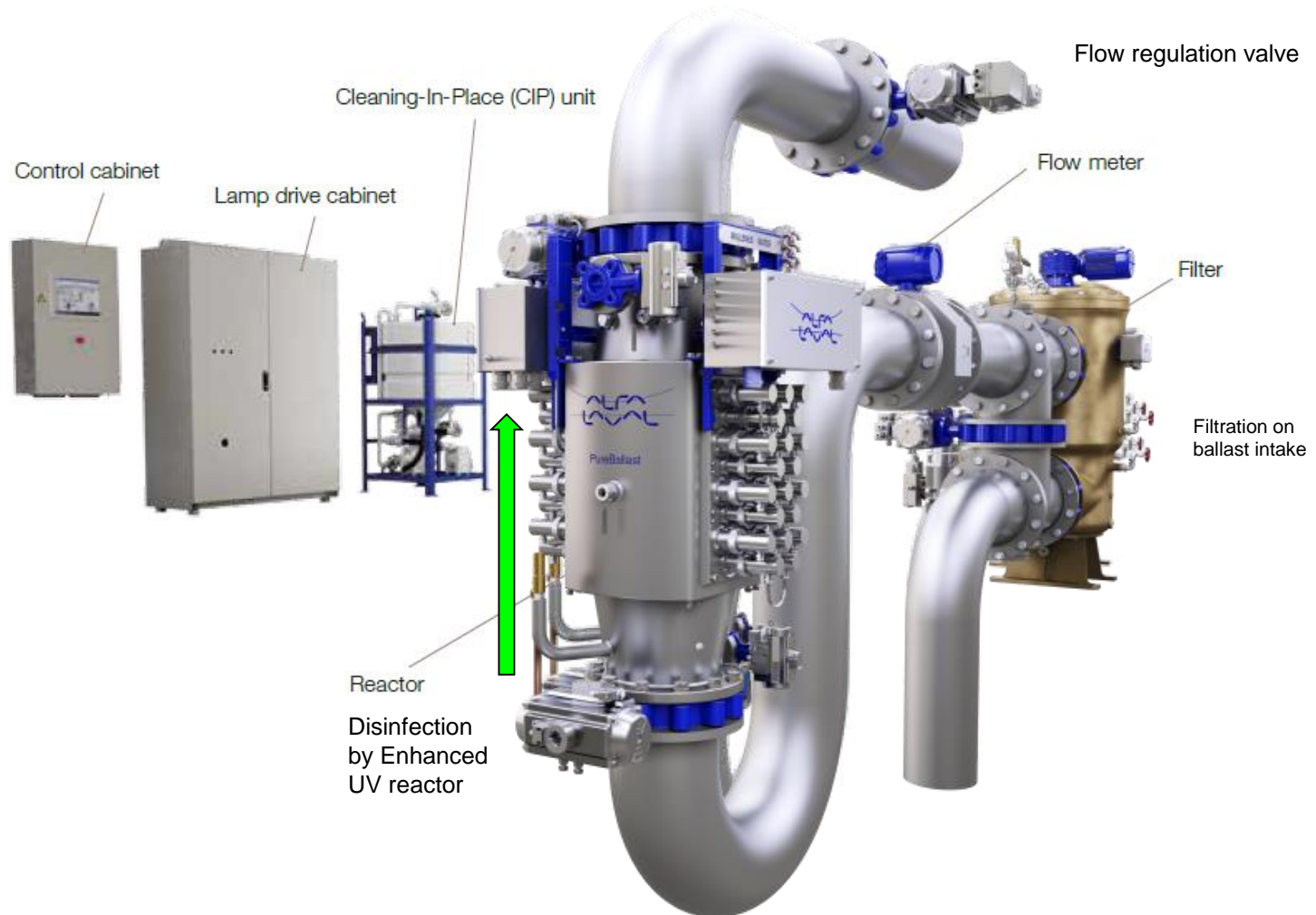
Joint venture – AlfaWall AB

- The PureBallast business is a 50%/50% owned joint venture between Wallenius Water and Alfa Laval. When the co-operation started Wallenius Water brought in the UV-reactor technology while Alfa Laval provided access to markets, sales, service and assembly capacity.
- R&D and PureBallast management are located in a co-owned Swedish legal entity: AlfaWall AB.
- From a financing perspective none of this matters, the customer contracts are signed by Alfa Laval – the joint venture aspects are handled through royalties in the background.

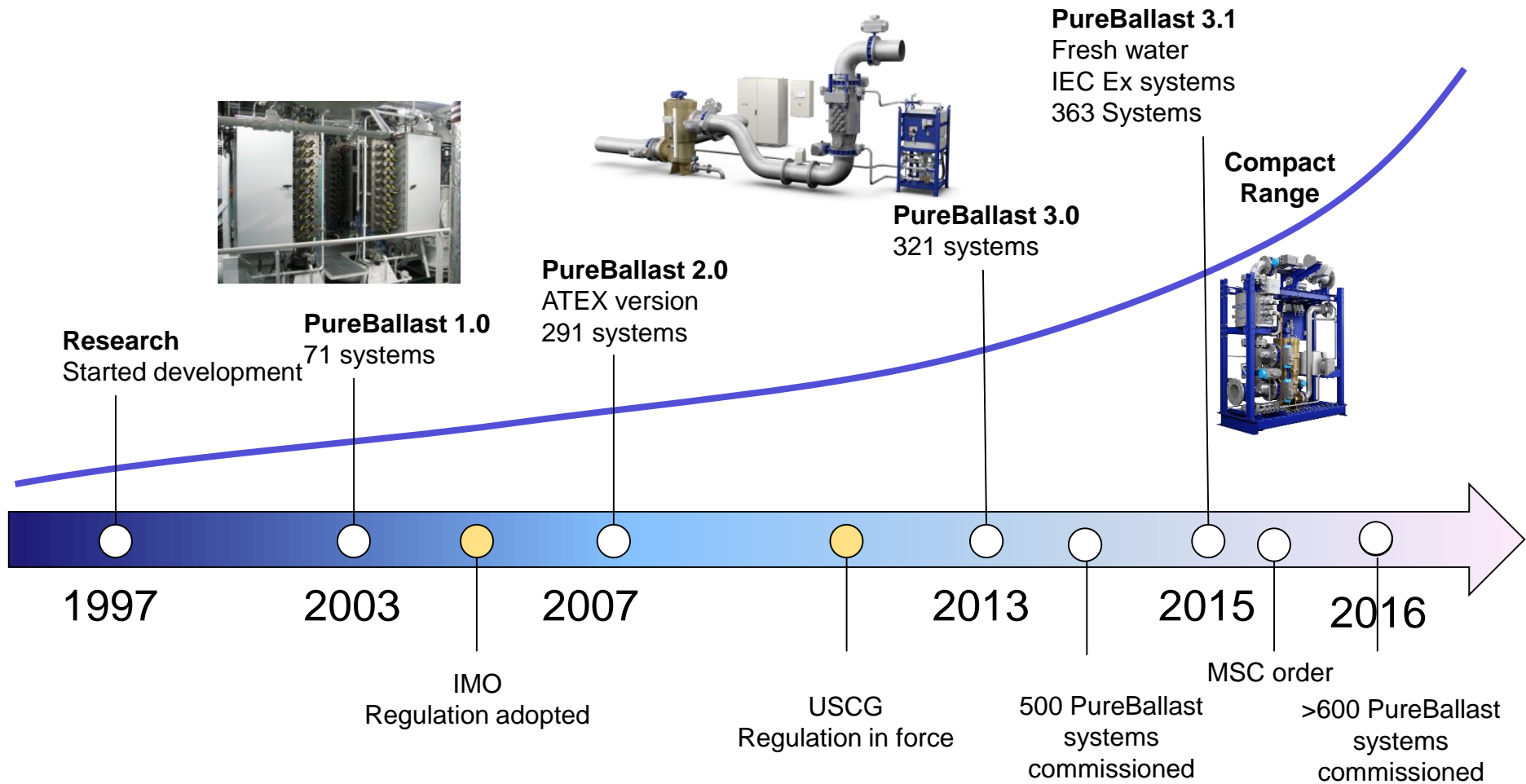


Alfa Laval PureBallast 3.1 System

Components



Our experience curve



2003

First installation at M/V Don Quijote



AlfaWall today

- Is one of the top three market leading suppliers of Ballast Water Management Systems
- Employs about 100+ direct and indirect employees in AlfaWall and Alfa Laval
- Management, R&D and customer support are based in Sweden
- Manufacturing in Denmark
- Sales and service through 63 sales offices

Join Venture success factors

- AlfaWall has grown up and celebrated recently 10 years.
- It is a very successful joint venture were $1+1=3$
- It has capitalized on Wallenius Waters reactor technology, Wallenius marines shipping experience and access to vessels for shipboard test and acting as lead customers
- While utilizing Alfa Laval brand name, channels to the market and service organization and infrastructure