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OceanGuard®

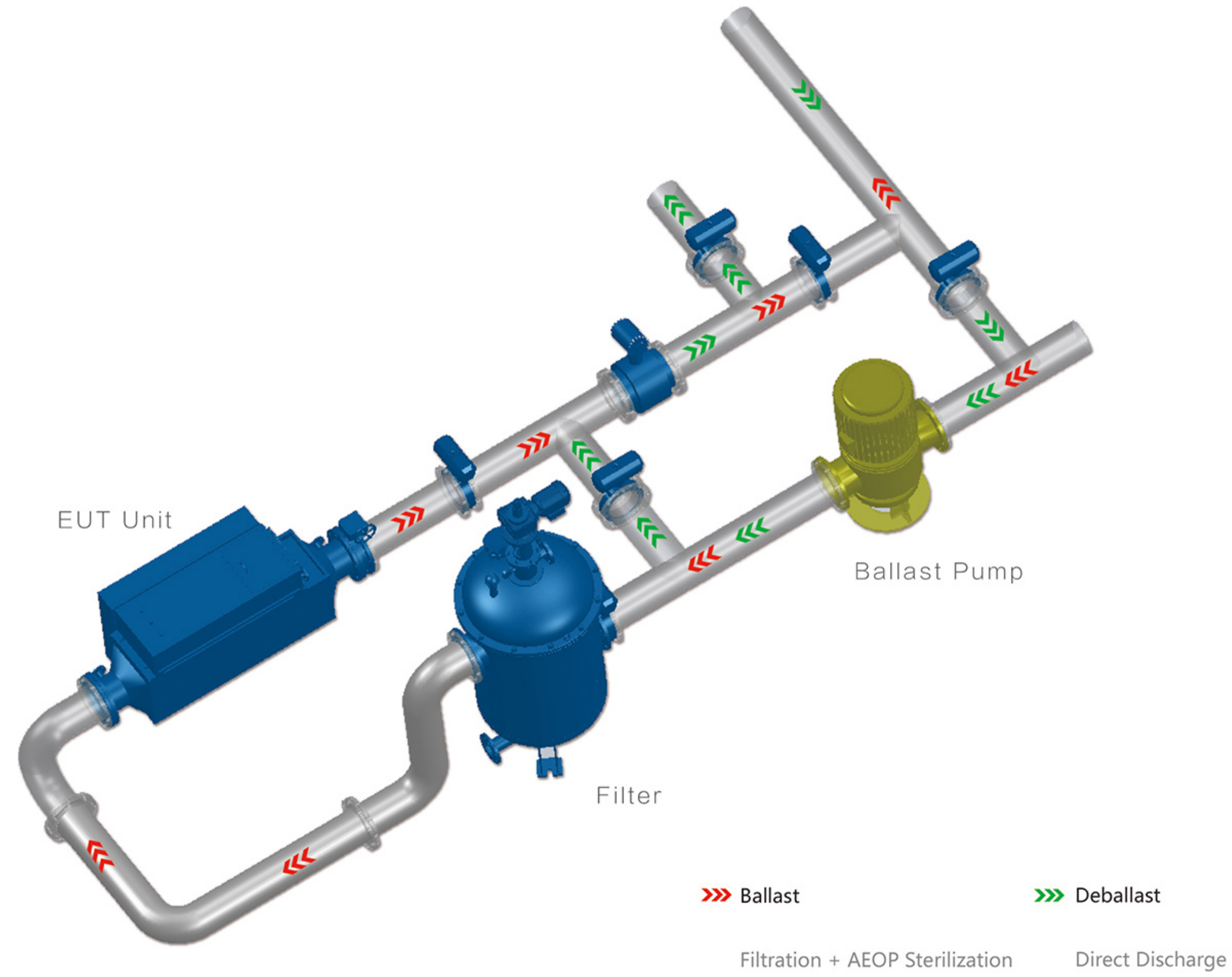
Ballast Water Management System

HEADWAY TECHNOLOGY CO.,LTD.

Ballast Flow Diagram



Control Unit



OceanGuard® BWMS Principle



Filtration

- Low back-pressure.
- Automatic back-flushing.
- Removing organisms larger than 50µm.
- Independent design.

Filter can be installed either vertically or horizontally to significantly ease the retrofitting of BWMS onboard.

Advanced Electro-catalysis Oxidation Process (AEOP)

- By adopting electron excitation to special semiconductor material, highly active Hydroxyl Radicals (-OH) will be produced from water molecules. The Hydroxyl Radicals kill micro-organisms, bacteria, and viruses in water by destroying their cell membrane.

Type Approval


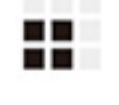


OceanGuard® BWMS -- the most comprehensive Type Approved system

Type Approved by 11 International Classification Societies



Advantages of OceanGuard® BWMS



- 
Low Power Consumption
 Consumption is approx. 17 KW for the treatment of 1,000m³ of ballast water.
- 
Small Footprint
 Compact design ensures flexible installation for vessels of all types and sizes.
- 
Safe & Non-corrosion
 No harmful by-products like H₂ or Cl₂, and no corrosion to the hull.
- 
Highly effective sterilization
 Complete sterilization, meeting USCG standard.



OceanGuard® Filter Specification

Type	Volume	Dimension	Flow Range
HMT-50F	60	540*510*1450	10-50
HMT-100F	120	650*565*1445	10-150
HMT-200F	205	800*670*1600	10-250
HMT-300F	300	900*780*1705	50-400
HMT-500F	450	980*780*1705	50-550
HMT-600F	650	1060*895*2330	50-700
HMT-800F	860	1180*1015*2380	50-900
HMT-1000F	1100	1300*1115*2530	50-1100
HMT-1500F	1490	1440*1230*2610	100-1600
HMT-2000F	1900	1500*1230*3260	100-2100
HMT-3000F	2500	1700*1455*3480	100-3100
HMT-4000F	4000	1900*1675*3600	100-4500
HMT-5000F	5900	2100*1915*4050	100-5500



OceanGuard® EUT Specification

Type	Power	Dimension	Capacity Range
HMT-50E	0.8	426*411*1041	10-85
HMT-100E	1.5	426*555*1041	10-150
HMT-200E	3	426*555*1376	10-250
HMT-300E	4.5	426*555*1701	50-350
HMT-450E	6.8	456*601*1821	50-500
HMT-600E	9	505*631*1957	50-700
HMT-800E	13	505*781*1957	50-900
HMT-1000E	17	605*676*2123	100-1100
HMT-1200E	21	605*786*2123	100-1400
HMT-1500E	25	665*786*2208	100-1700
HMT-2000E	34	665*926*2208	100-2200
HMT-2500E	42	695*1054*2212	100-2700
HMT-3000E	52	695*1054*2222	100-3500
HMT-4000E	69	695*1054*2222	100-4500

* Power Consumption Regular Sea Area

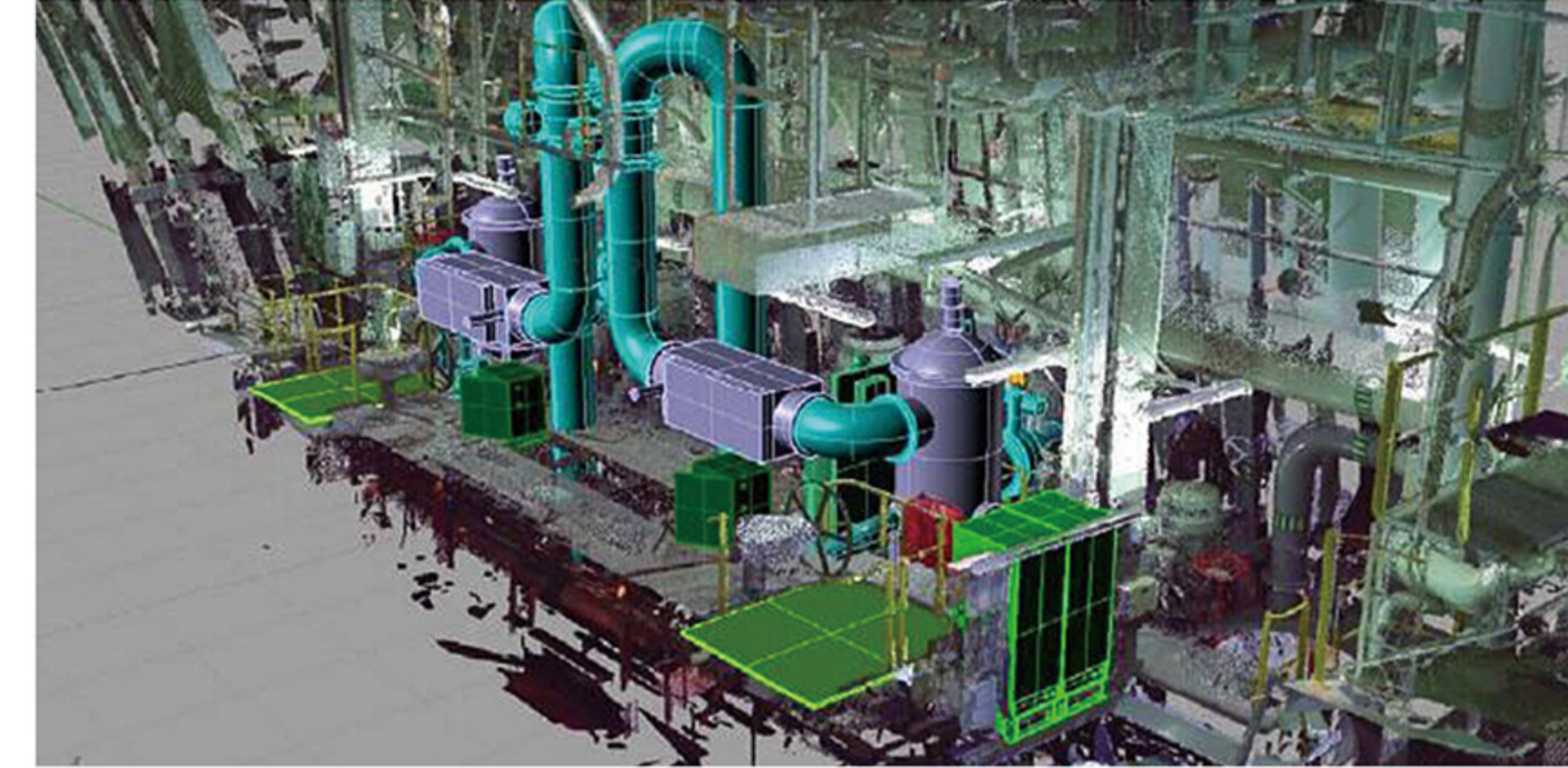


OceanGuard® Filter Specification

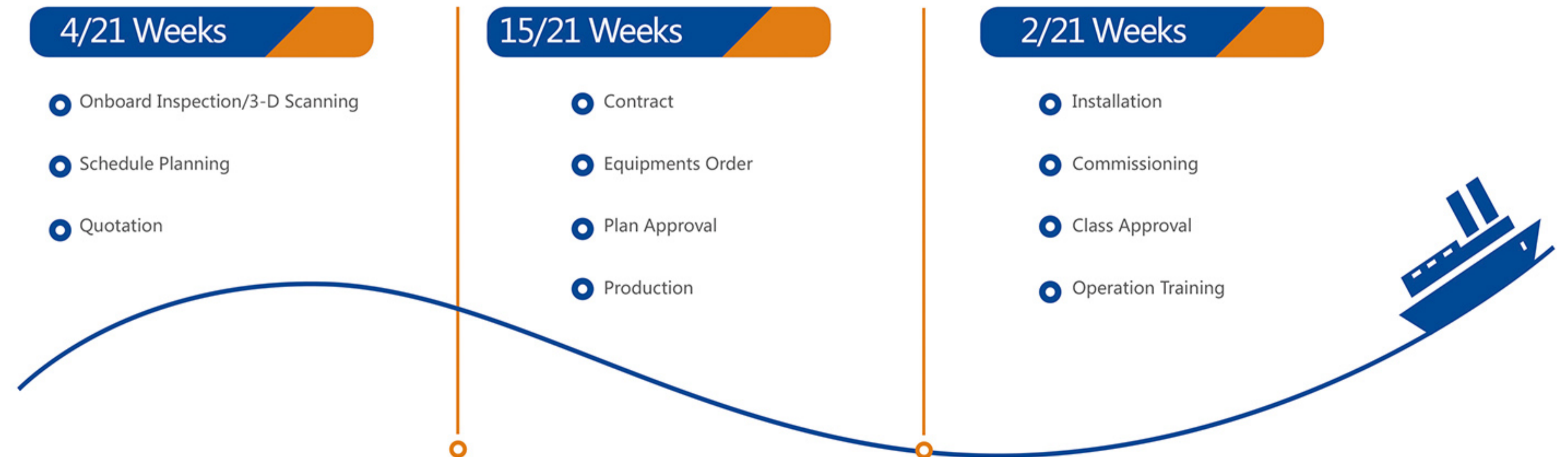
Type	Volume	Dimension L*W*H (mm)	Flow Range
S-ZF1-V	170	760*655*1679	10-150
S-ZF2-V	190	760*655*1679	10-250
S-ZF3-V	280	800*790*1880	50-400
S-ZF4-V	330	930*830*2050	50-550
S-ZF5-V	400	920*805*2200	50-700
S-ZF6-V	800	970*960*2700	50-900
S-ZF7-V	1250	1255*1190*2700	50-1100
S-ZF8-V	1375	1255*1190*2633	50-1300
S-ZF9-V	1800	1550*1500*2800	100-1600
S-ZF10-V	2400	1560*1520*3110	100-2200
S-ZF11-V	2500	1560*1520*3250	100-2500
S-ZF12-V	4200	1800*1700*3756	100-3500
S-ZF13-V	5400	1850*1750*4150	100-4500
S-ZF1-H	170	1599*655*760	10-150
S-ZF2-H	190	1599*655*760	10-250
S-ZF3-H	280	1800*765*980	50-400
S-ZF4-H	330	2030*795*1025	50-550
S-ZF5-H	400	2145*795*1025	50-900
S-ZF6-H	800	2600*970*1210	50-900
S-ZF7-H	1250	2700*1190*1427	50-1100
S-ZF8-H	1375	2533*1190*1427	50-1300
S-ZF9-H	1800	2700*1350*1600	100-1600
S-ZF10-H	2400	3100*1520*1645	100-2200
S-ZF11-H	2500	3100*1520*1645	100-2500
S-ZF12-H	4200	3756*1700*1800	100-3500
S-ZF13-H	5400	3970*1740*1920	100-4500

Retrofitting Advantages

- Suitable for vessels of all types
- Simple structure and flexible installation
- Small footprint and low power consumption
- One-stop service



Retrofitting Process



Cases

New Building Cases

Type	Container Vessel
Size	4,662 TEU
Model	HMT-600
Time	2014

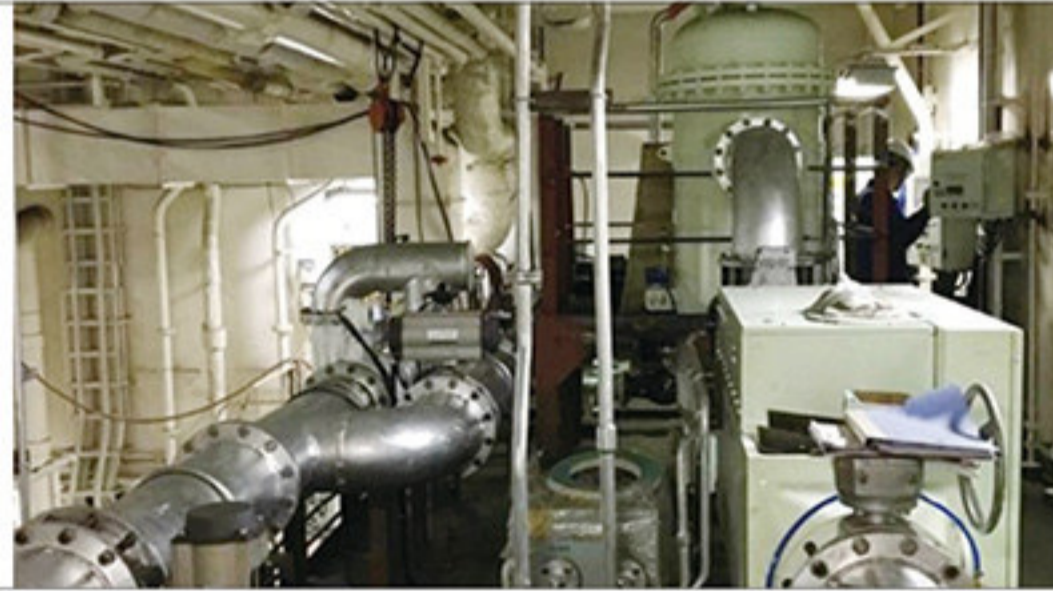


Type	Tanker
Size	50,000 DWT
Model	HMT-800x2(EX)+HMT-300
Time	2014

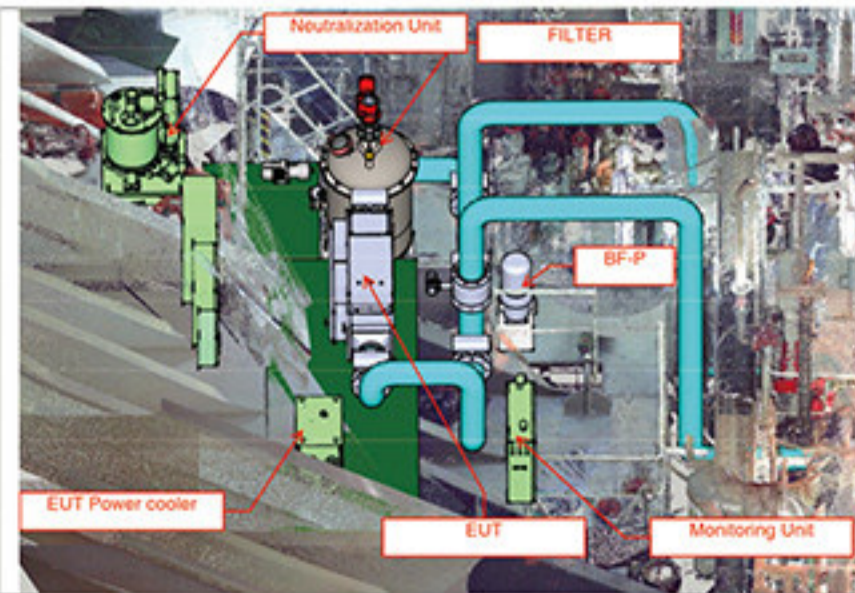
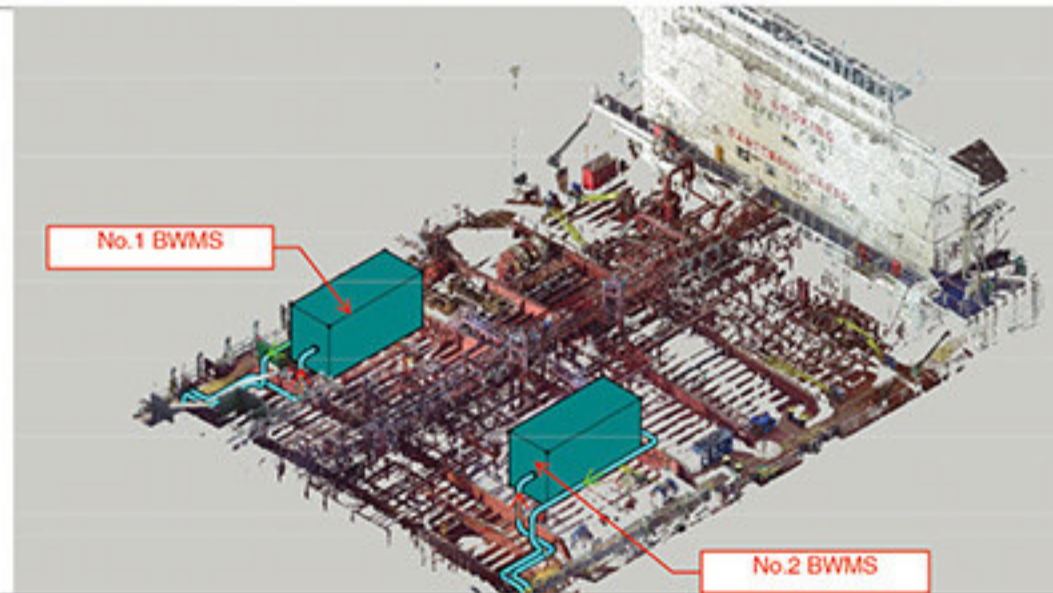


Retrofitting Cases

Type	Container Vessel
Size	4,662 TEU
Model	HMT-600
Time	2016



Type	Tanker
Size	50,000 DWT
Model	HMT-800x2(EX)+HMT-300
Time	2015



Type	Bulk Carrier
Size	53,000 DWT
Model	HMT-1000 X2
Time	2015



Type	Suezmax Tanker
Size	149,000 DWT
Model	HMT-2000x2(EX)+HMT-300
Time	2015



Type	Bulk Carrier
Size	61,000 DWT
Model	HMT-1000 X2
Time	2015



Type	Tanker LPG Carrier
Size	8,000 M ³
Model	HMT-200
Time	2014

