

Langh Tech

BALLAST WATER MANAGEMENT SYSTEM



COMPACT AND CUSTOMIZABLE BWMS

LanghBW - The environment first

To complement Langh Tech's previous green tech systems, Langh Tech's ballast water management system LanghBW was launched in September 2021 to help combat the environmental impact of invasive marine organisms spreading across waters. The UV-C technology-based BWMS has been thoroughly tested through usage on sister company Langh Ship's vessel MS Linda, as well as on land-based testing facilities. Trial runs proved the system to be highly efficient and customizable, while measuring at a remarkably compact size.



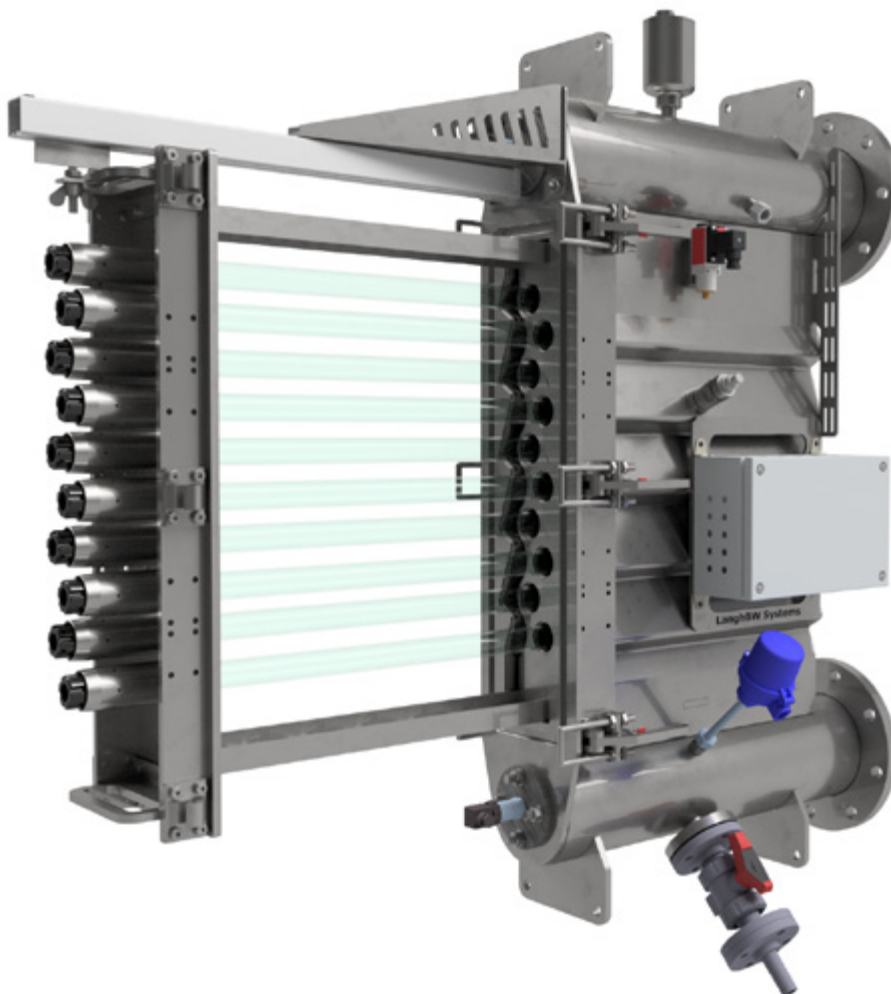
Multiple benefits

- ▶ Robust design and high grade materials
- ▶ High efficient and adaptive system
- ▶ Low pressure loss over the system
- ▶ Minimum operation restrictions
- ▶ Low operation costs
- ▶ Easy and straightforward user interface
- ▶ Simple maintenance
- ▶ Long service intervals
- ▶ Designed from mariner to mariner:
 - ▶ Optimized for onboard use
 - ▶ Affordable cost structure through system's lifespan
 - ▶ Time preserving operation
 - ▶ Can be used to increase ballasting capacity

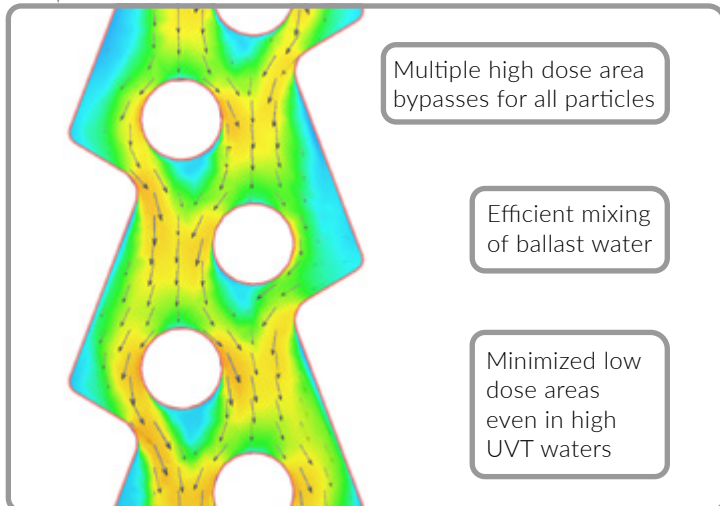
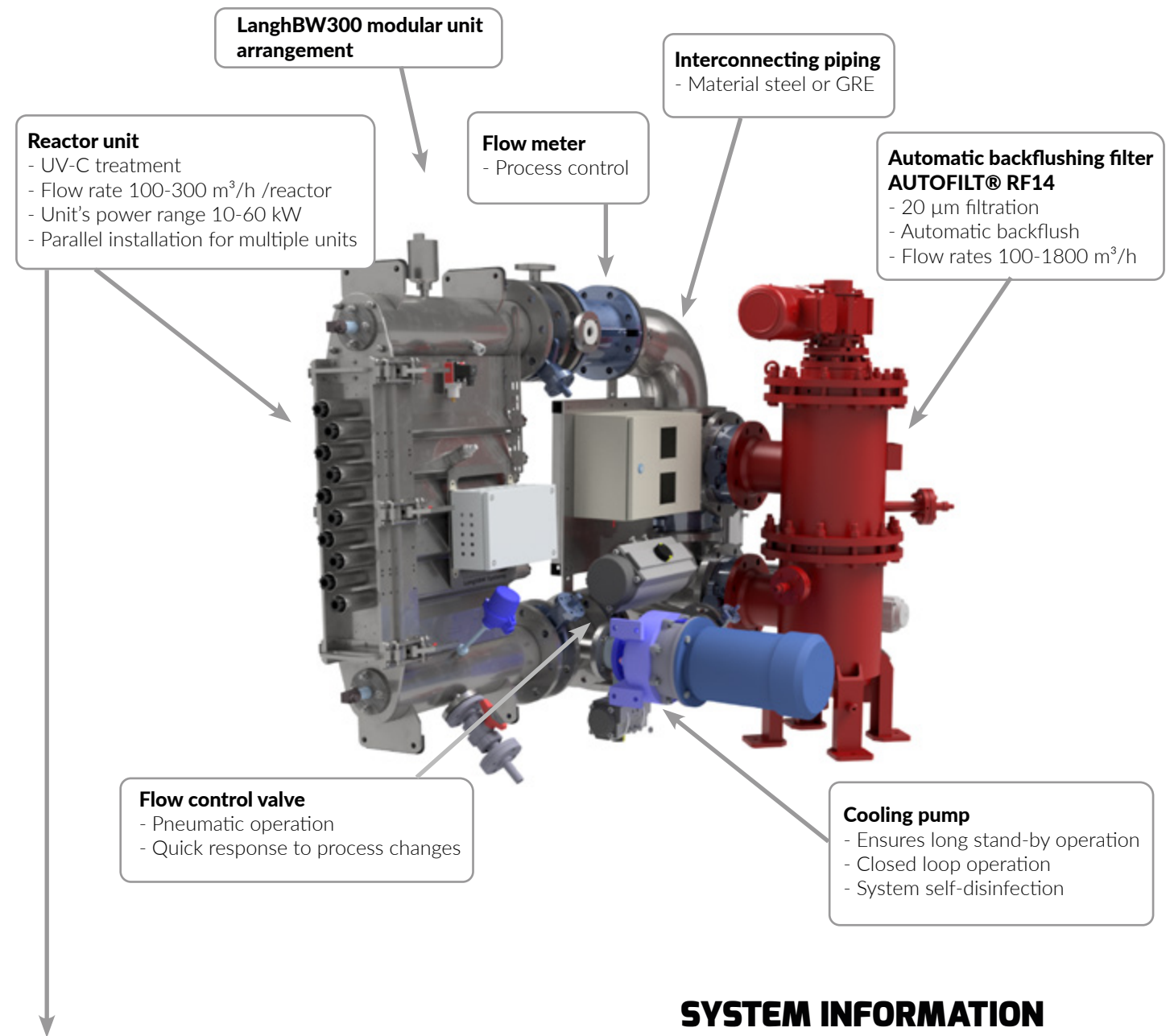
Effortless to clean and operate

The UV-C lamps in the LanghBW UV reactor unit are easy to clean - simply pull out the cassette in the reactor containing all lamps and wipe the lamp sleeves with a soft cloth. No need to remove the lamps from the cassette. No hassle with chemicals. The cleaning process is time-efficient, as the cassette can be pulled straight out without needing to unplug any cables.

Not only has the cleaning process been optimized for ease of use, but the operation of the system as well. The automation interface is very intuitive even for a new user. Only three buttons need to be pushed to start the system, and the rest is handled by the LanghBW automation, which is integrated with the automation system of the vessel.

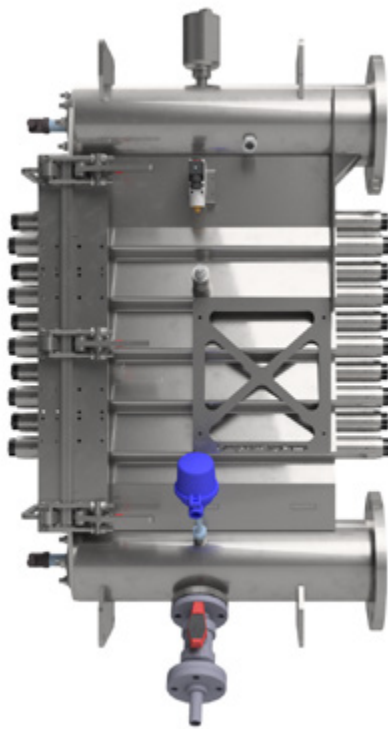


A LOOK INTO LANGHBW



SYSTEM INFORMATION

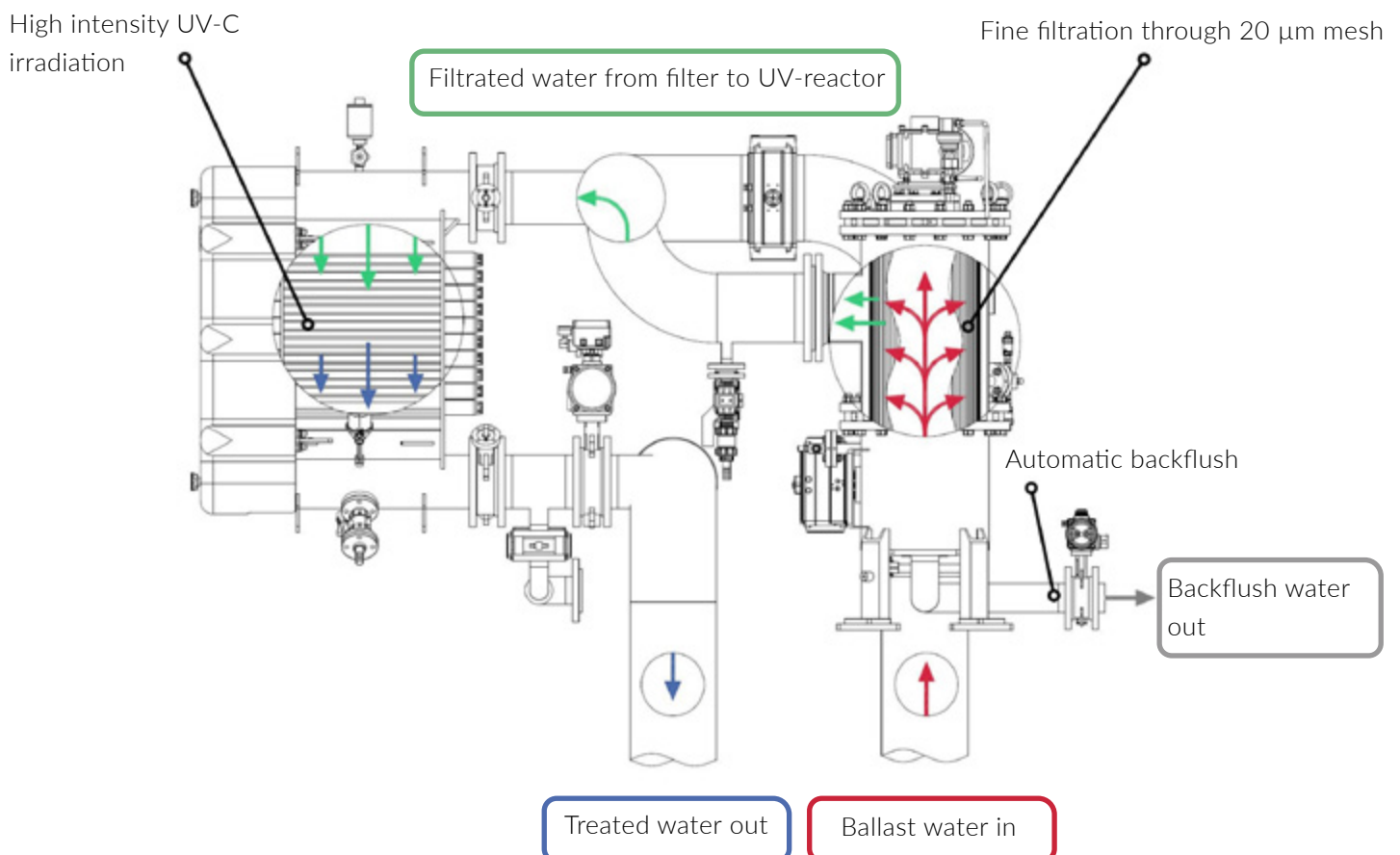
- ▶ 20 µm filtration and high intensity UV-C irradiation
- ▶ Flow rates 100-1800 m³/h
- ▶ Max. power consumption: 22 kW/100 m³/h
- ▶ Normal power consumption: 11 kW/100 m³/h
- ▶ Full flow rate operation in water with UVT value down to 56%
- ▶ Capable of treating min. 30% of total flow in UVT down to 45%
- ▶ No discharge hold time (IMO)
- ▶ Marine, brackish and fresh water
- ▶ IMO and USCG approval*



EASY SYSTEM INSTALLATION

- ▶ Easy installation in retrofits and new buildings
- ▶ Flexible installation options:
 - ▢ Framed units
 - ▢ Separate component installation
 - ▢ Tailored design
- ▶ Compact design - small footprint and low installation height
- ▶ LanhBW600 reference dimensions:
 - ▢ L: 2600 mm
 - ▢ W: 1200 mm
 - ▢ H: 1700 mm
- ▶ Easy integration to vessel's automation system
- ▶ Installation during on-hire, no dry docking required

WORKING PRINCIPLE



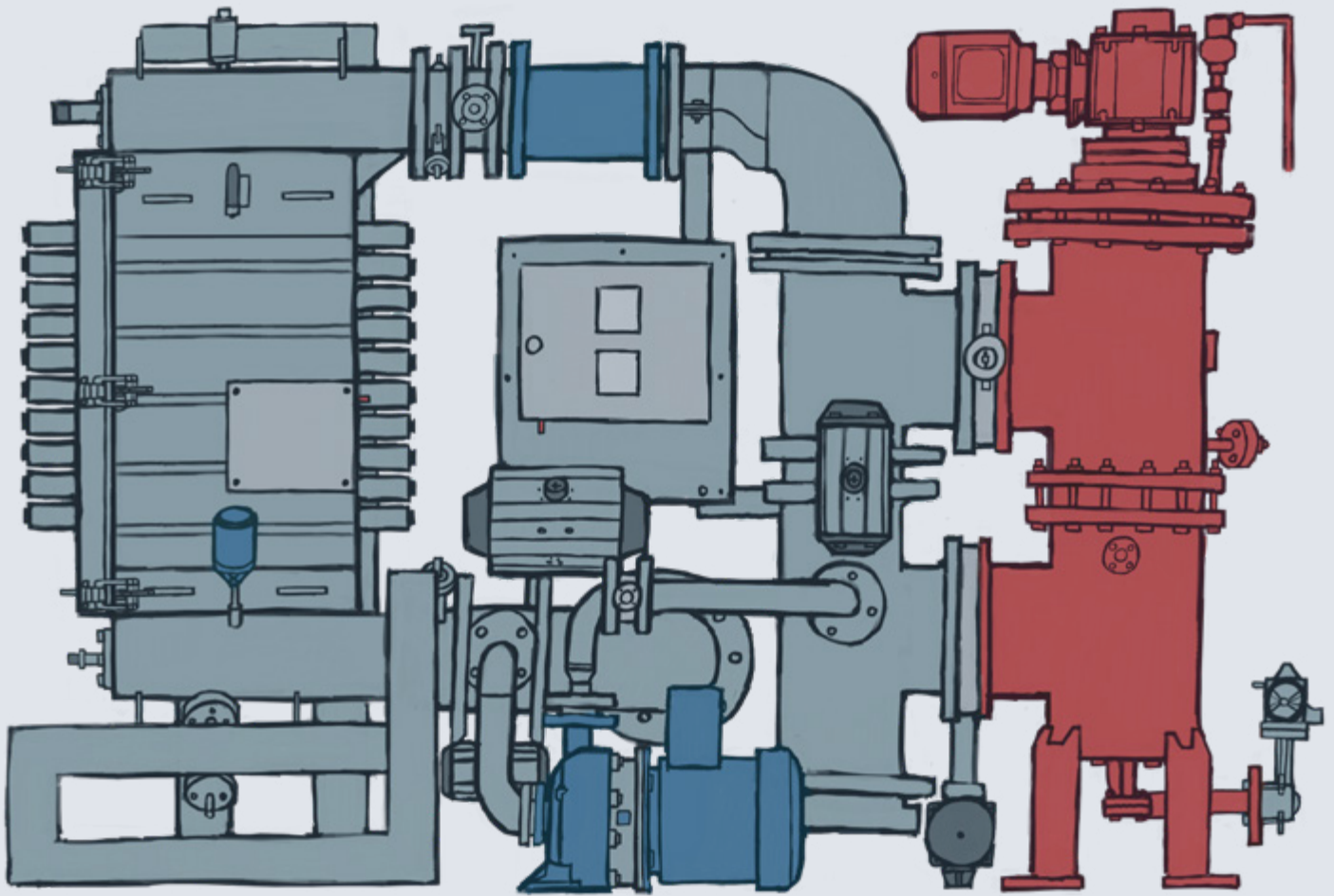
TECHNICAL SPECIFICATION TABLE

Technical specification	LanghBW300	LanghBW600	LanghBW900
Treatment method	Filtration and UV-treatment	Filtration and UV-treatment	Filtration and UV-treatment
Rated capacity	100-300 m³/h	100-600 m³/h	100-900 m³/h
Pressure range	2,0-3,5 bar	2,0-3,5 bar	2,0-3,5 bar
Rated lowest UVT (min. 100 m³/h)	45 %	45 %	45 %
Lowest UVT at full flow rate	56 %	56 %	56 %
Min. hold time (IMO areas)	0 hours	0 hours	0 hours
Min. hold time (USCG areas)	24 hours	24 hours	24 hours
Power consumption	10-65 kW	10-125 kW	10-185 kW
Power consumption in normal operation	35 kW	65 kW	95 kW
Standard reactor power supply required	3-phase 400-440V, 50-60Hz, 150A	3-phase 400-440V, 50-60Hz, 150A x 2	3-phase 400-440V, 50-60Hz, 150A x 3
Standard power supply required / CC1	3-phase, 400-440V, 50-60Hz, 40A	3-phase, 400-440V, 50-60Hz, 40A	3-phase, 400-440V, 50-60Hz, 40A
Power supply type	IT or TN-S	IT or TN-S	IT or TN-S
GPS interface included	Yes	Yes	Yes
Approvals	IMO & USCG	IMO & USCG	IMO & USCG
Basic components in Langh Tech's scope of supply			
Filter	RF14-15	RF14-20 / 25	RF14-25 / 30
UV-reactor	1 x Reactor Unit	2 x Reactor Unit	3 x Reactor Unit
Cooling pump	1 x CP1	1 x CP1	1 x CP1
Flow regulation valve	1 x DN150 control valve	2 x DN150 control valve	3 x DN150 control valve
Flow transmitter	1 x DN150 flow transmitter	1 x DN200 flow transmitter	1 x DN250 flow transmitter
Main control unit	CC1	CC1	CC1
Reactor power unit	UVP1	UVP1, UVP2	UVP1 - UVP3
Reactor unit connection box	RU1-XD1	RU1-XD1, RU2-XD1	RU1-XD1 - RU2-XD3
Remote I/O cabinet	R101	R101	R101
Local HMI panel	10" HMI panel	10" HMI panel	10" HMI panel
Basic integration to existing ballast system	With on/off signals and monitoring of 4 existing valves	With on/off signals and monitoring of 4 existing valves	With on/off signals and monitoring of 4 existing valves
Integration components, in Owner's scope of supply if not otherwise agreed			
Interconnecting piping	System specific	System specific	System specific
Manual valves	System specific	System specific	System specific
Actuated system side valves (if required)	System specific	System specific	System specific
Support structures	System specific	System specific	System specific
Cabling	System specific	System specific	System specific
Optional components, scope of supply to be determined			
Booster pump	System specific	System specific	System specific
Filter backflush pump	System specific	System specific	System specific
Remote HMI panel	10" panel, 15" panel or PC	10" panel, 15" panel or PC	10" panel, 15" panel or PC
Unit assembly	System specific	System specific	System specific
Integration to ship automation	Modbus TCP/RTU/other	Modbus TCP/RTU/other	Modbus TCP/RTU/other
Distribution board for power supply	System specific	System specific	System specific



LanghBW1200	LanghBW1500	LanghBW1800	Technical specification
Filtration and UV-treatment	Filtration and UV-treatment	Filtration and UV-treatment	Treatment method
100-1200 m³/h	100-1500 m³/h	100-1800 m³/h	Rated capacity
2,0-3,5 bar	2,0-3,5 bar	2,0-3,5 bar	Pressure range
45 %	45 %	45 %	Rated lowest UVT (min. 100 m²/h)
56 %	56 %	56 %	Lowest UVT at full flow rate
0 hours	0 hours	0 hours	Min. hold time (IMO areas)
24 hours	24 hours	24 hours	Min. hold time (USCG areas)
10-245 kW	10-305 kW	10-365 kW	Power consumption
140 kW	175 kW	210 kW	Power consumption in normal operation
3-phase 400-440V, 50-60Hz, 150A x 4	3-phase 400-440V, 50-60Hz, 150A x 5	3-phase 400-440V, 50-60Hz, 150A x 6	Standard reactor power supply required
3-phase, 400-440V, 50-60Hz, 40A	3-phase, 400-440V, 50-60Hz, 40A	3-phase, 400-440V, 50-60Hz, 40A	Standard power supply required / CC1
IT or TN-S	IT or TN-S	IT or TN-S	Power supply type
Yes	Yes	Yes	GPS interface included
IMO & USCG	IMO & USCG	IMO & USCG	Approvals
			Basic components in Langh Tech's scope of supply
RF14-35	RF14-40	RF14-40	Filter
4 x Reactor Unit	5 x Reactor Unit	6 x Reactor Unit	UV-reactor
1 x CP1	1 x CP1	1 x CP1	Cooling pump
4 x DN150 control valve	5 x DN150 control valve	6 x DN150 control valve	Flow regulation valve
1 x DN300 flow transmitter	1 x DN350 flow transmitter	1 x DN350 flow transmitter	Flow transmitter
CC1	CC1	CC1	Main control unit
UVP1 - UVP4	UVP1 - UVP5	UVP1 - UVP6	Reactor power unit
RU1-XD1 - RU2-XD4	RU1-XD1 - RU2-XD5	RU1-XD1 - RU2-XD6	Reactor unit connection box
RI01, RI02	RI01, RI02	RI01, RI02	Remote I/O cabinet
10" HMI panel	10" HMI panel	10" HMI panel	Local HMI panel
With on/off signals and monitoring of 4 existing valves	With on/off signals and monitoring of 4 existing valves	With on/off signals and monitoring of 4 existing valves	Basic integration to existing ballast system
			Integration components, in Owner's scope of supply if not otherwise agreed
System specific	System specific	System specific	Interconnecting piping
System specific	System specific	System specific	Manual valves
System specific	System specific	System specific	Actuated system side valves (if required)
System specific	System specific	System specific	Support structures
System specific	System specific	System specific	Cabling
			Optional components, scope of supply to be determined
System specific	System specific	System specific	Booster pump
System specific	System specific	System specific	Filter backflush pump
10" panel, 15" panel or PC	10" panel, 15" panel or PC	10" panel, 15" panel or PC	Remote HMI panel
System specific	System specific	System specific	Unit assembly
Modbus TCP/RTU/other	Modbus TCP/RTU/other	Modbus TCP/RTU/other	Integration to ship automation
System specific	System specific	System specific	Distribution board for power supply





About Us

In addition to BWMS, Langh Tech also designs and manufactures SOx scrubbers and scrubber water treatment systems. Langh Tech is part of the Langh Companies, which include ship owning company Langh Ship, container leasing and sales company Langh Cargo Solutions as well as Industrial and Ship Cleaning Services Hans Langh.

Contact us if you would like to know more!



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