



BIO STP - SEWAGE TREATMENT PLANT

MODERN BIOLOGICAL EQUIPMENT

The new designed JOWA BIO STP (Sewage Treatment Plant) is made for automatic operation onboard ships in accordance with IMO MEPC2(VI) and meets all the requirements in Marpol 73/78 annex IV.

JOWA BIO STP can handle all types of ships, sewage, black and grey water, black water only and galley water. The sewage can be led to the unit via both gravity and vacuum system. The grey water can also be led to the unit for sterilizing only.

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For many decades now, Jowa has been a trusted and reliable supplier of technical environmental protection equipment to the shipping industry. We can offer every conceivable service for installation, supervision, operation, monitoring and control of Jowa's equipment. You can choose between our own personnel or one of our trained representatives all over the world.

THE JOWA GROUP



System Description

The JOWA BIO STP is an aerated, submerged, fixed-film unit with a proprietary aeration system that provides major advantages for the operators.

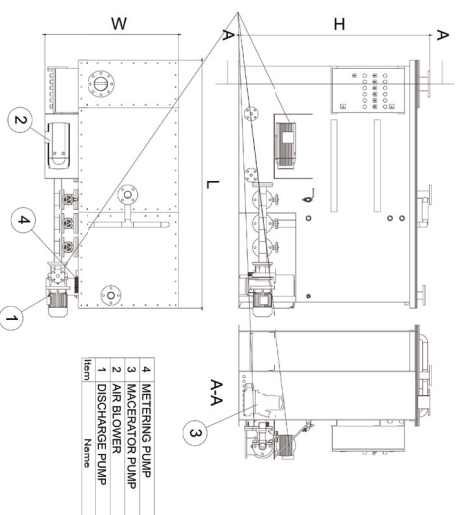
The macerating pump at the inlet prevents the unit from clogging when it macerates the raw incoming sewage and the biomass. This creates an optimum mixed wastewater that is easy to break down in the bioreactor.

The Bioreactor contains a cross-fluted structured matrix, on which the degrading bacterial biomass adheres and rapidly grows. The bioreactor ensures maximum optimum biological treatment, and the efficient aeration system ensures that the biological process produces no offensive odors.

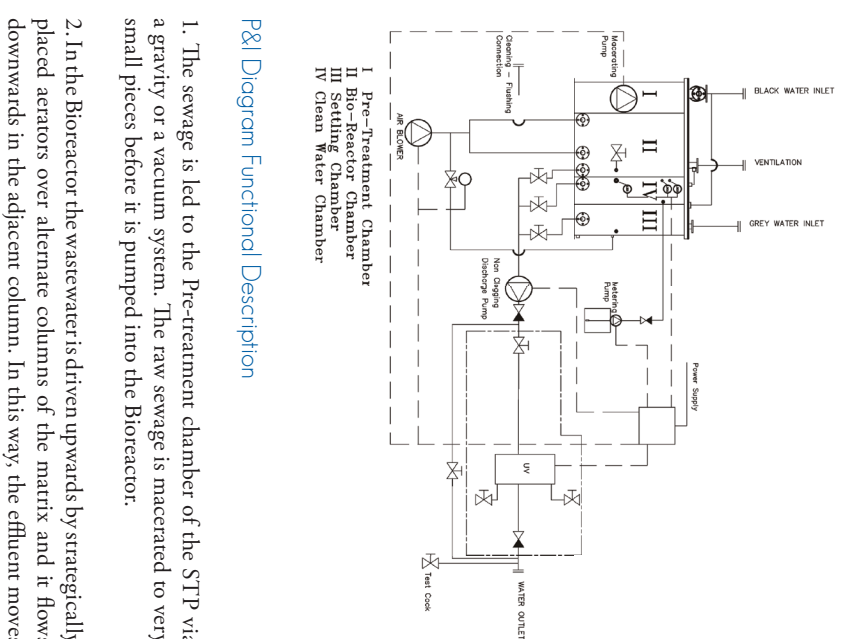
Due to the high de-gradative power of the JOWA BIO STP, it is much smaller than comparable biological degradation ones using suspended growth (rather than fixed-film) systems. In these aerated systems, the biomass concentration cannot be as high as in a fixed-film system, so the aeration volume has to be much larger. JOWA BIO STP has a smaller footprint, which makes it very suitable for marine use. The Bioreactor has a quick biological start period and is also non-sensitive to long shutdown periods due to continuous sludge return.

Main features

- » Macerating pump prevents the system from clogging
- » Type approved IMO RES. MEPC.2 (VI)
- » Compact design suitable for retrofits and new buildings
- » Quick starting process
- » Aerated odorless system
- » Non-sensitive to long shutdown periods
- » Suitable for all sewage onboard a ship
- » Approvals: SBG, RMRS and CCS



Type	Persons Black Water	Length (mm)	Width (mm)	Height (mm)	Empty Weight (kg)	Operational Weight (kg)
STP 1	10	1000	1000	1200	500	1100
STP 2	25	1475	1100	1600	650	2050
STP 3	35	2065	1100	1600	800	2780
STP 4	50	2150	1200	1800	1100	3950
STP 5	75	3000	1800	2000	1700	5940
STP 6	200	4000	1800	2200	2400	13200



P&ID Diagram Functional Description

1. The sewage is led to the Pre-treatment chamber of the STP via a gravity or a vacuum system. The raw sewage is macerated to very small pieces before it is pumped into the Bioreactor.
2. In the Bioreactor the wastewater is driven upwards by strategically placed aerators over alternate columns of the matrix and it flows downwards in the adjacent column. In this way, the effluent moves in a serpentine fashion through the whole of the Bioreactor to ensure maximum contact time and optimum biological treatment. The sludge in the bottom of the bioreactor is led back to the pre-treatment tank and is macerated again.
3. In the end of the biological process the water spills over into the settling chamber. The remaining suspended solids are removed into the specially designed settling chamber. The settled solids are returned back to the pre-treatment chamber by a solids airlift.
4. The treated water with very low values of BOD and SS is sterilized with chlorine or by UV light before it is pumped overboard.