



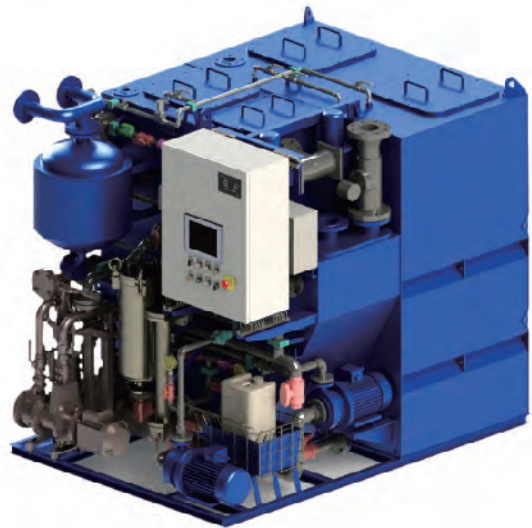
# Cyeco CSWB (E) Sewage Treatment Plant

Compact, durable, and intelligent

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Cyeco CSWB (E) sewage treatment plant is designed in compliance to the resolution IMO MEPC.227 (64), 2012 Guidelines on Implementation of Effluent Standards and Performance Tests for Sewage Treatment Plants, and manufactured for meeting the marine sewage discharge standard to protect the ocean and for the ocean conservation.

Cyeco CSWB (E) sewage treatment plant utilises electrolysis principle to process onboard sewage including black water and grey water to meet the effluence requirement of MEPC.227 (64).



# Specification

Model	Designed Hydraulic Loading (L/d)			Designed Organic Loading (kgBOD/d)			Maximum Loading (L/h)	Power (Kw)
	Black Water	Grey Water	Total	Black Water	Grey Water	Total		
CSWB(E)-20	1400	3200	4600	0.7	1.3	2	575	8
CSWB(E)-30	2100	4800	6900	1.05	1.95	3	862.5	8.5
CSWB(E)-40	2800	6400	9200	1.4	2.6	4	1150	9
CSWB(E)-50	3500	8000	11500	1.75	3.25	5	1437.5	9
CSWB(E)-60	4200	9600	13800	2.1	3.9	6	1725	9.5
CSWB(E)-70	4900	11200	16100	2.45	4.55	7	2012.5	11
CSWB(E)-80	5600	12800	18400	2.8	5.2	8	2300	13
CSWB(E)-90	6300	14400	20700	3.15	5.85	9	2587.5	13.5
CSWB(E)-100	7000	16000	23000	3.5	6.5	10	2875	14
CSWB(E)-150	10500	24000	34500	5.25	9.75	15	4312.5	20
CSWB(E)-200	14000	32000	46000	7	13	20	5750	23
CSWB(E)-250	17500	40000	57500	8.75	16.25	25	7187.5	27
CSWB(E)-300	21000	48000	69000	10.5	19.5	30	8625	34
CSWB(E)-400	28000	64000	92000	14	26	40	11500	40
CSWB(E)-500	35000	80000	115000	17.5	32.5	50	14375	53

## Characteristics

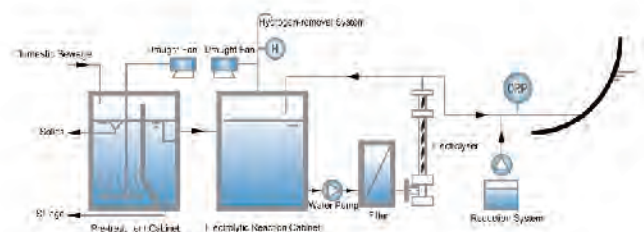
- **Wide applicable target** Applicable to all domestic onboard sewage
- **Compact and light weight** 2/3 of conventional equipment with the same capacity
- **Fully Automatic** Controlled Intelligently by Programmable Logic Controller (PLC); push-button starting, automatic equipment monitoring and parameter adjustment
- **Extensively adaptable** Operational under wide range of water temperature
- **Rapid start-up** Once powered, no lead time is required for meeting the discharge standard
- **Durable** Specialised anti-corrosion treatment ensures the system's resistance to oxidation and erosion
- **Nitrogen and phosphorus removal** Applicable to all ships

## Principle

The domestic sewage firstly flows into the pre-treatment cabinet, which removes solids by air floatation, and then the sewage enters into the sedimentation chamber to further remove the sludge before it arrives the electrolytic reaction cabinet.

The electrolytic reaction cabinet forms an inner circulation with filter and electrolyser. The filter removes the suspended matters in the electrolyser to prevent the electrode from being polluted and to ensure the suspended solid of the effluent.

The electrolyser treats the mixture of sewage and seawater with oxide generated, which causes the degradation of the organic pollutants and inactivation of the microorganism once the oxide



is in contact with the sewage.

The sewage will then finally being discharged after removing the residual oxidants. The hydrogen by-product, which is generated by the electrolytic reaction, will be diluted by the hydrogen-removal system to keep the concentration ten times below the theoretical explosive threshold.