













World Best SUNBO Family

A prime manufactaturer & supplier of pre-engineered module unit and marine equipment

Foundation : 1986

: Busan in Korea Location Homepage : www.sunbo.co.kr





Total marine & power plant engineering company

Foundation : 1993

Location : Busan in Korea : www.idsec.co.kr Homepage



BlueZone[™] **BWMS**

MICRO OZONE BUBBLE TYPE



Ship & Marine **Engineering**

dsec



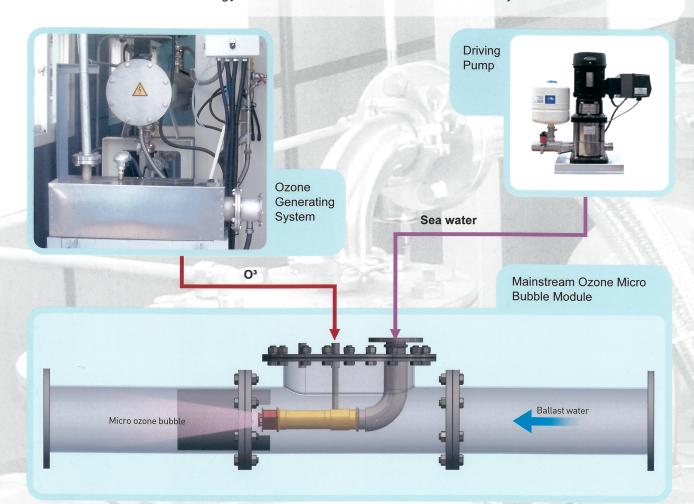
Blue Zone

BlueZone[™] BWMS

disinfects harmful aquatic organisms and pathogens in ballast water using micro sized ozone bubbles.

What is Ozone?

- Safe & strongest oxidant, disinfection
- Proven technology in water treatment industries for 100 years



Great Advantage of Micro Ozone Bubble

Maximization of disinfection effect

- long residence time in ballast tank
- Maximizing dissolution efficiency









Why BlueZone BWMS?

Simple

- Easy installation
- Easy operation by full automation

Reliable

- Proven technology in water treatment industries for 100 years
- Optimized solution by marine engineering expert

Low cost

- Min. ozone injection rate
- Low power consumption & no filter
- · Min. modification of existing vessel



BlueZone™ BWMS

BWMS Type Comparison Table

Based on a VLCC, 3000m³/h x 2 sets of ballast pump capacity.

	Ozonation	Electrolysis	Filter + Electrolysis	Filter + UV
Operating concept	Ballasting	Ballasting	Ballasting+Discharging	Ballasting+Discharging
Pressure loss	0 bar	0.5 bar	1.0 bar	1.2 bar
Electricity consumption	440 kw	684 kw	867 kw	994 kw
Foot print area	26 m²	25 m²	32 m²	33.4 m ²
Weight (Include yard installation)	21 ton	71 ton	41 ton	85 ton
CAPEX	****	***	***	***
Installation	****	**	***	***
Energy saving	****	***	***	*
OPEX	****	****	***	**

★Rate of advantage