

**KOGANEI**  
<http://www.koganei.co.jp>

No.BK-P038

**NEW**  
Products

Equipment for improving circulating cooling water quality

# DB Scale Separator

PATENTED

DBSS100C•DBSS50C

DBSS50A-2W•DBSS50A-9W•DBSS50A-5W



New  
technology

Cleaning tower, chiller circulation cooling water  
Scale removal saves energy and electrical power!

# DB Scale Separator

PATENTED

Dielectric breakdown type electrolysis

We suggest a new water treatment method.

## Features

- Dielectric breakdown method electrolysis system using a titanium plate (electrode).  
\* Japan and international patent
- The titanium electrode characteristics makes it possible to separate and remove even ionized silica, which is difficult to remove using existing systems.
- No chemicals are used, which eliminates equipment damage and increases equipment life. No need to worry about emission control in the case of water that includes chemicals.

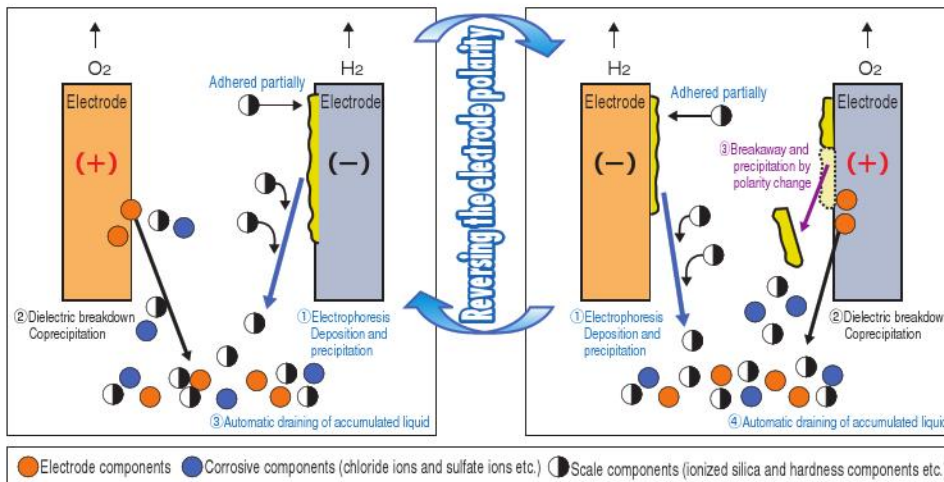
## Effects

- Saves energy and electric power!  
Elimination of scales from heat exchange parts and piping improves heat exchange efficiency. This reduces wasted power, electricity, energy, supply water, and other costs.
- Well-balanced simultaneous separation and removal of scale-derived components in water (ionized silica, hardness components, etc.) and corrosion-derived components (chloride ions, sulfate ions, etc.).
- Stable water quality (stability index = 6 to 7\*) suppresses scale and corrosion damage.  
\* : Stabilizing index=6 (scale property) < Treated water Note < 7 (corrosion property)  
Note: This varies depending on water quality, load, and operating conditions.
- Reduced slime damage and algae.  
Chloride ions that are present in water generate hypochlorous acid (HClO), which produces an antibacterial effect. Tap water generally includes chloride ions.

Eliminates scale problems!

25 to 100 kg [55.116 to 220.5 lb]/  
365 day component removal

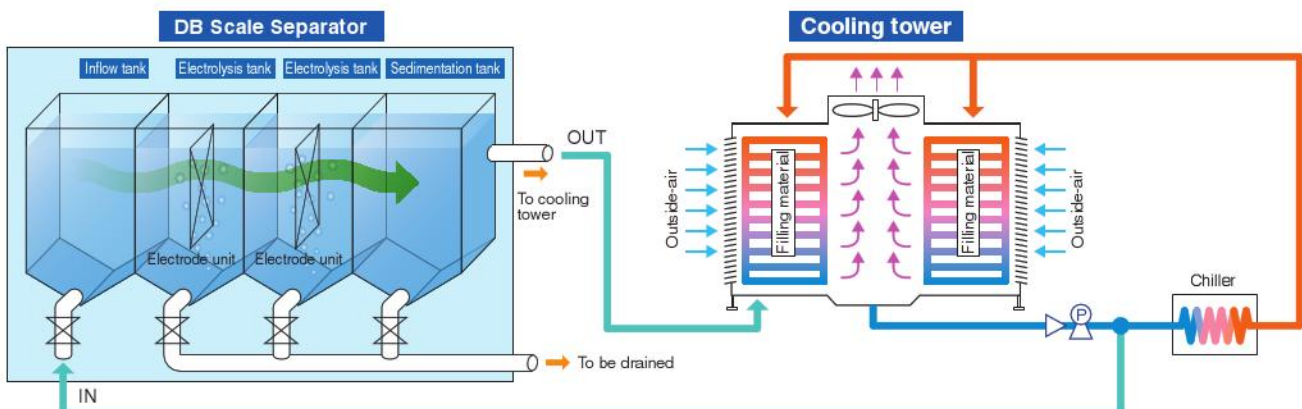
## The principle (conceptual drawing)



- ① Scale components (ionized silica and hardness components etc.) move to the (-) electrode by electrophoresis due to electrolysis action, and deposition and precipitation are occurred. Some components adhere to the electrode.
- ② Simultaneously, the (+) electrode's breakaway action makes corrosive components and some part of scale components to coprecipitate to be separated and removed with electrode components.
- ③ Reversing the (-) polarity to (+) polarity removes the scale adhering to the (-) electrode by dielectric breakaway action, and maintains electrode performance.
- ④ Accumulated deposition at the bottom will be periodically drained and automatically removed.

Note: The electrode is a consumable part.

## Treatment Flow (conceptual drawing)



**Non  
chemical**

Environment friendly **RoHS** directive compliant products!

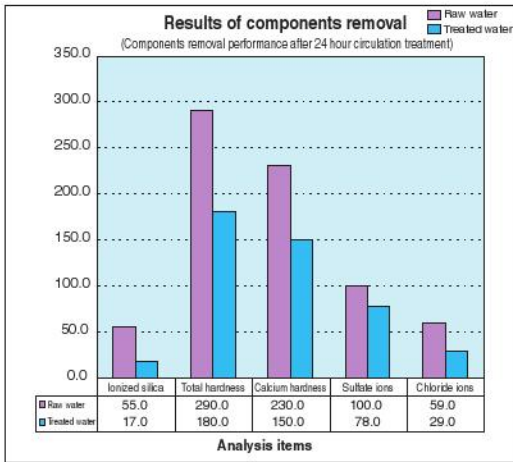
# New technology improves the water quality of circulating water.

## Treatment Results

Test conditions: Data are obtained through 24 hour circulation process of raw water by using our test equipment without heat load.

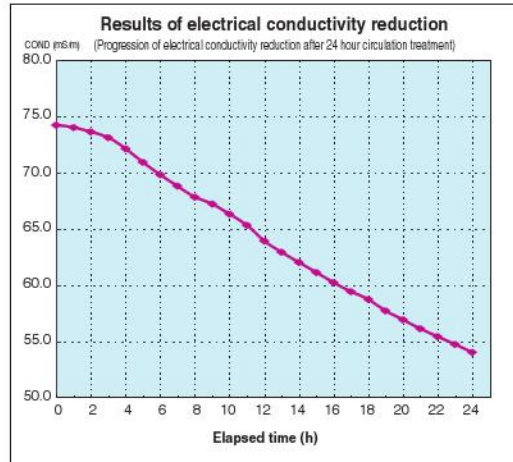
**Removal of scale components** (ionized silica and hardness components etc.)

**Corrosive components** (chloride ions and sulfate ions etc.)



The DB Scale Separator physically removes various kinds of components in raw water by using the special electrolysis method. Especially ionized silica, hardness components, chloride ions, and sulfate ions etc. are simultaneously removed.

## Reducing electrical conductivity



The DB Scale Separator physically removes various kinds of components in raw water, and reduces electrical conductivity (COND: mS/m). For example, in the case of cooling towers, blow down volume, make-up water volume, and sewage amount can be reduced.

## Drained accumulated liquid



Sedimentation condition



After dried condition

## Order codes

Product model	DBSS100C	DBSS50C	DBSS50A-2W	DBSS50A-9W	DBSS50A-5W
Electrode unit model <sup>Note</sup>	DBSS100ELEC	DBSS50ELEC	DBSS50ELEA-1W	DBSS50ELEA-3W	DBSS50ELEA-2W

Note: The electrode unit is a periodically replaceable part. As a general rule, it should be replaced one a year.

## Specifications

Item	Model	DBSS100C	DBSS50C	DBSS50A-2W	DBSS50A-9W	DBSS50A-5W
Outer dimensions	mm [in]	1802 × 860 × 1396 [71 × 33.9 × 55]	1396 × 860 × 1396 [55 × 33.9 × 55]	739 × 727 × 1307 [29.1 × 28.6 × 51]	634 × 700 × 1200 [25.0 × 27.6 × 47]	510 × 526 × 991 [20.1 × 20.7 × 39.0]
Dry mass	kg [lb]	430 [948.0]	315 [694.5]	170 [374.8]	130 [286.6]	73 [160.937]
Total water volume in tank	ℓ	470	325	160	160	32
Drained amount	ℓ /day	645	510	160	160	32
Main unit connection port	IN	1-inch 25A barb fitting		1/2-inch 15A barb fitting	Rc 1/2-inch 15A	1/2-inch 15A barb fitting
	OUT	2-inch 50A barb fitting		1-1/4-inch 32A barb fitting	Rc 1-inch 25A	1-inch 25A barb fitting
	Drain	2-inch 50A barb fitting x 2		1-1/4-inch 32A barb fitting	1-1/4-inch 32A barb fitting	1-inch 25A barb fitting
Input current		Single phase 200 VAC 50/60Hz				
Consumption power	kW	0.6	0.5	0.3	0.3	0.15
Annual component removal volume <sup>Note</sup>	kg [lb]	100 [220.5]	50 [110.231]	25 [55.116]	25 [55.116]	5 [11.023]

Note: Removal volume of dissolved solids (scales and corrosion-derived components, etc.) for process inflow water conductance of 80 mS/m. Depends on water quality, load, usage environment, and operation conditions.

## Model selection guidelines

Item	Model	DBSS100C	DBSS50C	DBSS50A-2W	DBSS50A-9W	DBSS50A-5W
Supported process water		Cleaning tower circulating water				Chiller circulating water
Supported equipment		300 to 600RT	150 to 300RT	To 150RT		20 kW, 6 HP (horsepower)



**CAUTION**

Read the "Safety Precautions" in the separate instruction manual before use.

## Dimensions mm [in]



Item	Model	DBSS100C	DBSS50C	DBSS50A-2W	DBSS50A-9W	DBSS50A-5W
External dimensions	A (width) mm [in]	1802 [71]	1396 [55]	739 [29.1]	634 [25]	510 [20.1]
	B (depth) mm [in]	860 [33.9]	860 [33.9]	727 [28.6]	700 [27.6]	526 [20.7]
	C (height) mm [in]	1396 [55]	1396 [55]	1307 [51]	1200 [47]	991 [39]
Processed water outlet water level	D (height) mm [in]	1075 [42]	1075 [42]	1056 [42]	1055 [42]	700 [27.6]

## Special compatible products

We have prepared the following special products. For details, consult us.

### 1. Remote monitor equipment

Monitoring alarms of electrical conductivity, current, voltage, and equipment abnormality (abnormalities of motor valve and water level etc.). This enables the above monitoring and transmit the conditions to the designated account.

### 2. Ganged control with the circulating pump.

### 3. Variable performance control by monitoring electrical conductivity.

### 4. Module type (1 tank to 4 tank linking)

Depending on the heat load size, multiple electrolysis tanks in series can be selected. The number of tanks can be increased.

Split shipment makes installation and transport easy.



### Module type

(Photo shows 2-tank type)



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●Note that the specifications and external appearance are subject to change without notice.