

A cleaning system with electrolyzed ion water alleviates environmental loads.

TIWS - Ion Water Cleaning System

Features

- Uses no chemical or detergent, thus ensuring the high performance of oil and water separation and making it possible to alleviate environmental loads currently resulting from wastewater and industrial waste.
- Operates without subject to ISO 14001, RoHS, PRTR, or VOC restrictions.
- Performs an energy reduction of approximately 40% with a heat pump used.

Overview

(Technical principles, actions, etc.)

The TIWS Ion Water Cleaning System performs the special electrolysis of water softened by a neutralizer and generates alkaline ion water on the cathode side and acid ion water on the anode side. Anions, such as sulfate ions and chloride ions, will move to the anode side at the time of electrolysis. Therefore, the content ratios of these anions in the alkaline ion water used for degreasing are low. Furthermore, the TIWS System's patented special electrolysis does not use an electrolysis aid, thus generating a minimal quantity of free chlorine. As a result, the alkaline ion water has a high antirust effect.

The reason why the TIWS Ion Water Cleaning System is selected.

—Uses only water as a resource.—

Electrolysis technology changes tap water into detergent

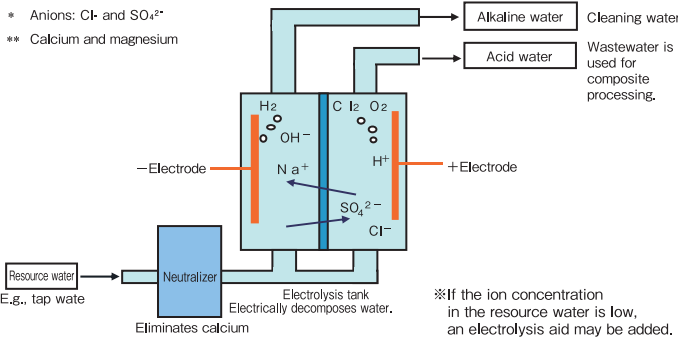
Generates electrolysis alkaline water with a high cleaning effect from electrically decomposed water.

* The cause of rust is discharged onto the acid water side.

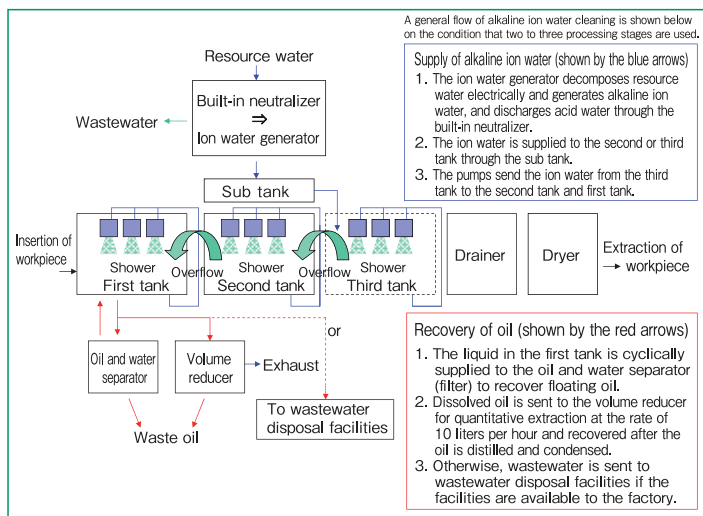
** The cause of the scale on pipes and a fall in cleaning performance are eliminated with the neutralizer.

* Anions: Cl⁻ and SO₄²⁻

** Calcium and magnesium

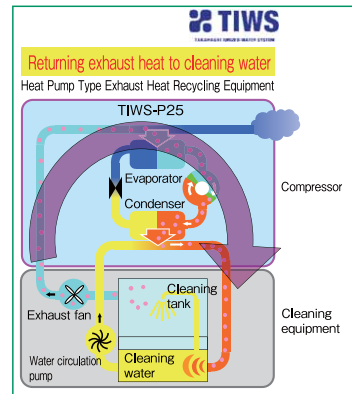


Generation Flow of Electrolyzed Ion Water



Flow of Ion Water Cleaning

The surface tension of ion water at normal temperature generated by electrolysis is as low as that of hot water. By adding thermal energy to the ion water, its ability to penetrate between workpieces and the oil or dirt on the workpieces will be reinforced. The synergistic effect of physical energy, such as a shower or supersonic waves, will turn the ion water into a practical degreasing detergent that can remove the fat and dirt efficiently.



Operation Flow of Heat Pump

Introductory Track Record

- Japan: Approximately 600 units
- Korea: Approximately 10 units mainly used by Japanese companies as well as Korean companies
- China: Approximately 100 units mainly used by Japanese companies as well as Korean and Hong Kong companies
- Taiwan: Approximately 10 units used by Taiwanese companies and others
- Thailand: Thailand: Approximately 10 units mainly used by Japanese companies
- Vietnam: 2 units
- Malaysia: 1 unit
- Singapore: 1 unit
- Indonesia: 2 units
- Philippines: 1 unit

Units have been introduced to Europe and North and South America as well.

Effects

① The TIWS Ion Water Cleaning System incorporates an ion water generator that automatically generates electrolyzed ion water from source water (tap water or industrial water) and uses the electrolyzed ion water for cleaning purposes. The System does not use detergents or chemicals. Therefore, the following four effects are expected.

- ① The System is free of residual detergents or chemicals, thus ensuring high-quality cleaning for the next stage.
- ② The oil and water separation performance of the System is high, and the System evaporates waste cleaning water after collecting oil from the waste cleaning water, thus greatly reducing the quantity of wastewater and industrial waste and making it possible to realize low environmental loads.
- ③ The System automatically supplies ion water to cover the quantity of evaporated wastewater, and maintains cleaning water with stable cleaning performance without being extracted periodically, thus enabling the reduction of the running cost of the System.
- ④ The System reduces a large quantity of energy consumption by incorporating a heat pump.

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Applicable field
Degreasing washing of processed metal (pressed or machined metal)
Micro-etching treatment of printed circuit boards

Water
Pollution

Energy Saving

New Energy

Measures against Global Warming
Natural Energy
Energy Recovery

Others

Air
Pollution

Soil
Pollution

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