

Arimitsu Industry Co., Ltd.

# Environment-conscious Atomizing System

- **The system that sprays atomized water to the atmosphere to cool down the temperature with vaporization heat**

## Features

- **“Cooling down”**  
The system sprays atomized water to the atmosphere to cool down the temperature by about 5°C in a wide area covered by the atomized water. It is a human- and environment-friendly solution to heat stroke.
- **“Prevention of the heat island effect”**  
The system cools down the intake air of outdoor units to enhance the cooling efficiency of the air-conditioning system (of commercial buildings and factories) during the cooling operation, thereby providing varying benefits, including energy saving, stable operation, and mitigation of the heat island effect.
- **“Prevention of dust generation”**  
The system sprays atomized mist through the ceiling to prevent generation of dust so as to improve the working environment in the factory. The system is often installed for dual purposes, or humidification and dust prevention, in a recycling center, where paper products are handled, as a solution to fire prevention.

## Overview (Technical principles, actions, etc.)

The atomizing system is a product that “utilizes water” as a solution to the heat island effect. The system pressurizes tap water with a high-pressure pump and sprays atomized water (a few tens of microns in size) through nozzles to the atmosphere (Fig. 1). When sprayed pressurized water evaporates, it absorbs the heat of the ambient air. This effect is the principle of our system’s efficient cooling down performance. We are a domestic pump manufacturer supplying pumps whose rotation speed (586 min<sup>-1</sup>) is slower than that of overseas manufacturers’ pumps and which therefore are excellent in durability and noise reduction (Fig. 2). Also equipped with the automatic on/off control panel (Fig. 3), the system is designed to operate under the three conditions: (1) temperatures above the set level (temperature sensor), (2) no rainfall (rain sensor) (Fig. 4), and (3) within the set time (weekly timer).

Model	TEW 0402	TEW 0704	TEW 1508
Spray pressure (Mpa)	6	6	6
Amount of spray (L/min)	2.1/1.7	4.24/3.53	7.92/6.58
Input power (V)	Single-phase 100	Single-phase 100	Three-phase 200
Output (kW)	0.4	0.75	1.5
No. of installable nozzles (for 0.15φ)			



Fig. 1 Atomized water



Fig. 2 Plunger pump



Fig. 3 Control panel



Fig. 4 Rain sensor

## Introductory Track Record



Rooftop greening



Cooling down in a driving range



Dust prevention and humidification in a paper mill



Cooling down at an event venue



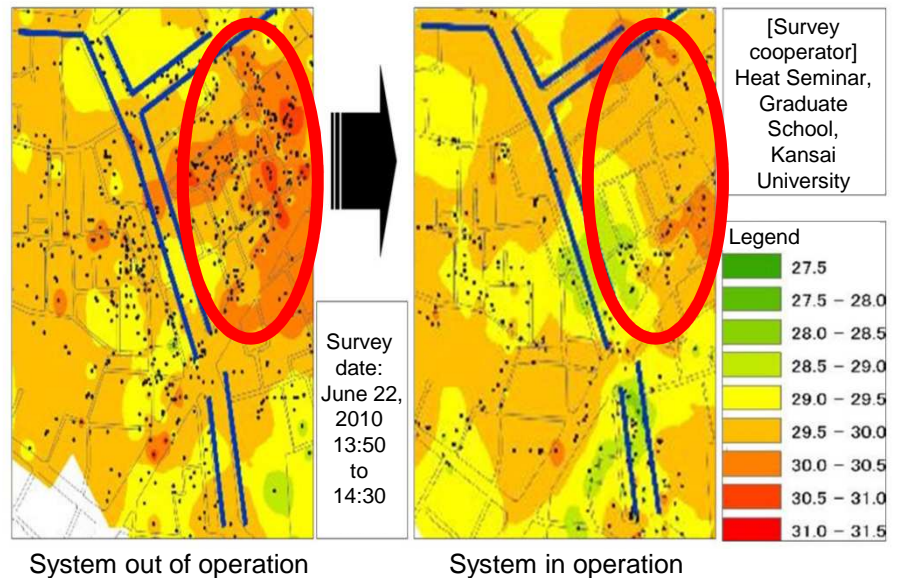
Cooling down in Suita shopping mall



Outdoor unit

## Effects

- The atomizing unit was installed to reduce the temperature in Suita shopping mall in summer to increase the number of visitors. The atomizing piping installed is about 1.3 km long, the longest in Japan (as of 2009). The system automatically sprays atomized water when the three conditions are met, or between 11:00 to 17:00, humidity of below 70%, and outside temperature of over 30°C. There is a clear difference in temperatures between when the system is operated and when it is not from the outside temperature distribution diagrams. Visitors enjoy the cool shopping mall, making such comments as “Very much cooled down” or “I can reduce the set temperature for the cooling operation in my shop by 2 to 5°C.”



Promotion Department

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