FLASH STEAM AND WASTE WATER HEAT EXCHANGERS

• Eliminate "steam clouds" and recover heat energy!
• Deliver energy savings by heating supply water with high-temperature waste water!
Effective use of heat energy generated by waste steam clouds and boiler blowdown

In steam-using plants, flash steam from condensate receivers and supply water tanks and waste steam from production processes often still contain significant heat energy but are simply discharged to atmosphere. These “steam clouds” contribute to a poor work environment and can lead to trouble with local residents. Likewise, high-temperature water from boiler blowdown lines and other unusable water is still a viable source of heat energy, but is often discharged to pits, energy and all.

The SR and SR-B series are atmospheric indirect heat exchangers that recover discarded heat energy as hot water, and enable the use of recovered energy for heating boiler supply water and other applications. Furthermore, those troublesome “steam clouds” are also eliminated.

- High heat exchange efficiency comparable to closed type heat exchangers
- Compact, space-saving design
- Economical, requiring no electrical power

Energy Savings via Heat Recovery

Eliminate “Steam Clouds” from Facilities

Large Degree of Freedom for Installation

The product can be easily introduced as it is an open-to-atmosphere system free from the restrictions and regulations governing pressure vessels.

All Stainless Steel Indirect Heat Exchanger

Clean, hot water supplied from stainless steel heat exchanger coil tube

Useful for Various Applications

Almost no back pressure (maximum of 50 mmAq) to steam-using equipment, so it can be used for a variety of processes
Steam Condensing Heat Exchanger  SR-3/SR-8

Eliminate “steam clouds” and recover heat energy as hot water

- Hot water generated by SR series is suitable for cleaning/preheating water for production processes, bottle washing and other post-production cleaning applications
- Unique structure that does not apply pressure makes recovery of atmospheric pressure steam possible

Before Installation
- Negative effects of steam clouds on bldg./equipment
- Bad image to local residents
- Loss of actually usable energy (waste steam)

After Installation
- Steam cloud elimination
- Hot water utilization
- Energy savings via heat energy (waste steam) use

High-temperature Waste Water Heat Exchanger  SR-B1.5/SR-B4

Heat exchange between discarded boiler blowdown and boiler supply water, increasing the supply temperature and reducing fuel costs

Example 1

Case Study
Heat Recovered
- Approx. 460 MJ per hour

Savings
- Approx. 39,700 USD per year

Operating Conditions
- Boiler Pressure: 0.8 MPaG
- Blowdown Rate: 6 %
- Fuel Cost: 0.012 USD per MJ
- Steam Generation Rate: 15 t/h
- Supply Water Temp.: 40 °C
- Annual Oper. Time: 7,200 h/yr

Example 2

Heat recovery from high-temperature water 100 °C or more which is unsuitable for condensate recovery

- Suitable for cleaning/preheating water for production processes, bottle washing and other post-production cleaning applications (Heat recovery from vulcanizers, autoclaves, and sterilizers etc.)

NOTE: The sketches above are for explanation purposes only, and are not intended as installation designs.
### Specifications

#### Steam Condensing Heat Exchanger

<table>
<thead>
<tr>
<th>Material</th>
<th>Body</th>
<th>Heat Exchanger</th>
<th>Max. Blowdown/High-temp. Water Pressure</th>
<th>Steam Flow Rate (kg/h)</th>
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#### gallery

### Once-through Boilers

- **Heat recovery from waste water**
- **Steam cloud elimination**

### Waste heat recovery performance graphs

#### SR-3/SR-8

1. The graph to the left shows the relationship between the amount of steam passing through the heat exchanger and the temperature of the hot water outlet after cold water at 20 °C has been heated. Consult TLV when the cold water temperature is not around 20 °C.

2. The graph to the right shows the relationship between the amount of steam passing through the heat exchanger and the temperature of the hot water outlet after cold water at 20 °C has been heated. Consult TLV when the cold water temperature is not around 20 °C.

### Applications

- **SR-3/SR-8**
  - Heat recovery from steam in processes where pressure cannot be applied (Waste steam heat recovery from steamers, set machines, etc.)
  - Treatment of re-evaporated steam from supply water/condensate tanks
  - Improving work environment where steam clouds are generated around the plant

- **SR-B1.5/SR-B4**
  - Heating boiler supply water with water from continuous blowdown
  - Heat recovery from high-temperature water at 100 °C or more which is unsuitable for condensate recovery
  - (Heat recovery from vulcanizers, autoclaves, and sterilizers etc.)
  - Improving work environment where steam clouds are generated around the plant

### CAUTION

To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.