



# STEAM CONDENSING HEAT EXCHANGER

## MODEL SR-3/SR-8

### HIGH-PERFORMANCE ATMOSPHERIC HEAT EXCHANGER FOR WASTE HEAT RECOVERY

#### Features

**Atmospheric indirect heat exchanger for recovering heat energy from waste or flash steam from applications where the steam cannot otherwise be utilized.**

1. Open to atmosphere system adds very little back pressure to steam using equipment (maximum 50 mm water head).
2. Achieves a more effective heat exchange than closed system heat exchangers.
3. Open to atmosphere system is free from the restrictions and regulations governing pressure vessels.
4. Compact, space-saving design.
5. Requires no electric power, providing very high economic efficiency.
6. Improves work environment by eliminating "clouds of steam" generated around the plant.



#### Specifications

Model		SR-3	SR-8
Connection & Size (mm)	Steam Inlet	80 Flanged	150 Flanged
	Condensate Outlet	50 Flanged	
	Condensate Blow Valve	15 Screwed	25 Screwed
	Cold Water Inlet	20 Screwed	40 Screwed
	Hot Water Outlet	20 Screwed	40 Screwed
	Exhaust	150 Pipe End (Duct nipple installable)	
	Overflow Outlet for Exhaust Pipe	10 Screwed	
Maximum Operating Pressure (MPaG) PMO	Body (shell side): 0		Coil (tube side): 1.0
Maximum Operating Temperature (°C) TMO	up to 100		
Maximum Steam Flow Rate (kg/h)	300		800
Maximum Heat Recovery Capacity (MJ/h)	670		1,800
Heat Transfer Surface Area (m <sup>2</sup> )	2.0		5.4

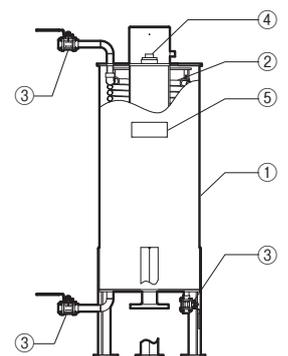
Contact TLV for non-standard design specifications  
 PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS): Maximum Allowable Pressure (MPaG) PMA: Body: 0.05, coil: 2.0  
 Maximum Allowable Temperature (°C) TMA: Body: 158, coil: 180  
 1 MPa = 10.197 kg/cm<sup>2</sup>



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.

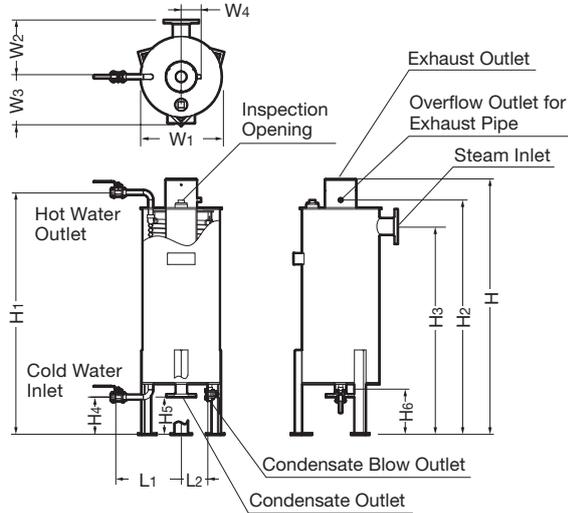
No.	Description	Material	JIS	ASTM/AISI*
①	Body	Stainless Steel	SUS304	AISI304
②	Heat Transfer Coil	Stainless Steel	SUS304	AISI304
③	Full-bore Ball Valve BV1	Cast Stainless Steel	—	A351 Gr. CF8
④	Plug	Stainless Steel	SUS304	AISI304
⑤	Nameplate	Stainless Steel	SUS304	AISI304

\* Equivalent



**Dimensions**

● **SR-3 / SR-8**



**SR-3 / SR-8** (mm)

Model	L1*	L2	H	H1	H2	H3	H4
SR-3	370	150	1350	1280	1240	1100	200
SR-8	420	170	1850	1790	1740	1550	320

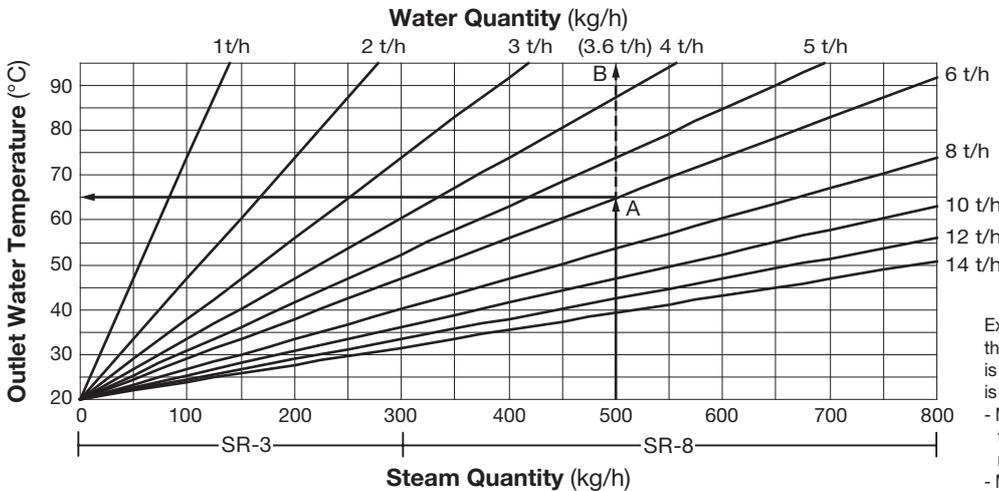
Model	H5	H6	φW1	W2	W3*	W4*	Weight* (kg)	
							Empty	Full
SR-3	200	180	426	300	260	105	140	160
SR-8	350	300	528	350	310		250	280

\* Approximate  
Flanged connections are ASME Class 150 RF.  
Screwed connections are NPT except on inspection opening (Rc(PT) 2)  
Other standards available

**CAUTION** In case of unexpected steam flow, connect piping from the exhaust outlet to a safe area. Unexpectedly high steam volumes may cause high-temperature condensate to be discharged through the exhaust outlet, which may in turn cause burns or other injury.

**Waste Heat Recovery**

Cold Water Inlet temperature is 20 °C



1. The graph to the left shows the relationship between the amount of steam passing through the heat exchanger and the outlet water temperature. Consult TLV if the feed water temperature is not around 20 °C.
2. When the outlet water temperature exceeds 95 °C, steam cannot be condensed and will be discharged from the exhaust outlet.

Example: At the intersection "A" on the graph, 500 kg/h of waste steam is collected and 6 t/h of water is used for heat recovery.  
- Moving left from this point reveals that hot water at 65 °C can be recovered with the SR-8.  
- Moving up to point "B" reveals that 3.6 t/h of cold feed water will be required. If less is used, some waste steam will remain uncondensed.

● **Required Water Differential Pressure**

Because the SR-3/SR-8 is an atmospheric indirect heat exchanger using stainless steel tubing, make sure the cold water pressure is high enough to maintain a differential pressure at least equal to the differential pressures indicated in the table below. However, the water pressure must not exceed 1.0 MPaG.

Water Quantity (t/h)		1	2	3	4	5	6	8	10	12	14
Min. Differential Pressure (MPa)	SR-3	0.03	0.11	0.23	0.40	0.62	—	—	—	—	—
	SR-8	—	—	0.03	0.05	0.07	0.10	0.17	0.27	0.38	0.60

Example: If 4 t/h water is used for heat recovery with an SR-8, differential pressure between the cold water inlet and the hot water outlet should be at least 0.05 MPa.

Manufacturer  
**TLV** CO., LTD.  
Kakogawa, Japan  
is approved by LRQA Ltd. to ISO 9001/14001

