

Cooling for plating solutions, anodizing solutions, and others.

*Compact and easy maintenance
by direct cooling structure without water chiller.*



Doing more with less

Cool liner

Direct cooling system

*Built-in high corrosion resistant metals (Ti • Zr • Nb • SUS304 • SUS316L) heat exchanger,
for any type of solution.*

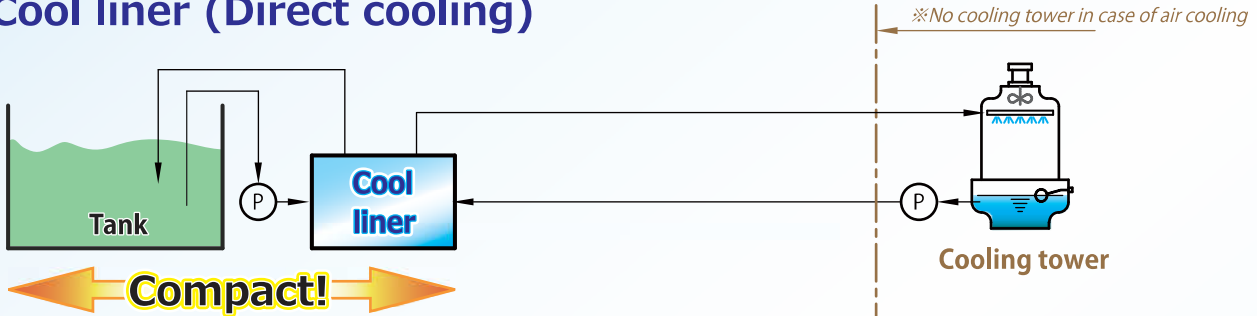
Extremely compact! Compare to others.

Cool liner is an ideally suited fully automatic cooling system for anodizing and plating solutions. Built inside a freezer with a heat exchanger inside. Direct cooling structure by evaporating compression refrigerant into a heat exchanger. There are many advantages when compared to an indirect cooling system using cool water as refrigerant.

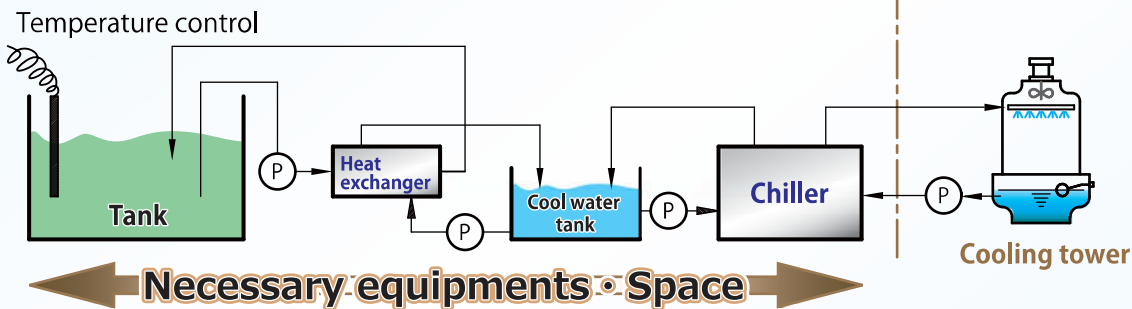
- ① Compact size due to low numbers of equipments
- ② Reduce complicated pipe arrangement
- ③ Reduce total cost
- ④ Simple, easy controls (fully automatic)
- ⑤ Easy maintenance

Also, many different materials can be chosen for the heat exchanger such as SUS, Ti, Zr, and Nb.

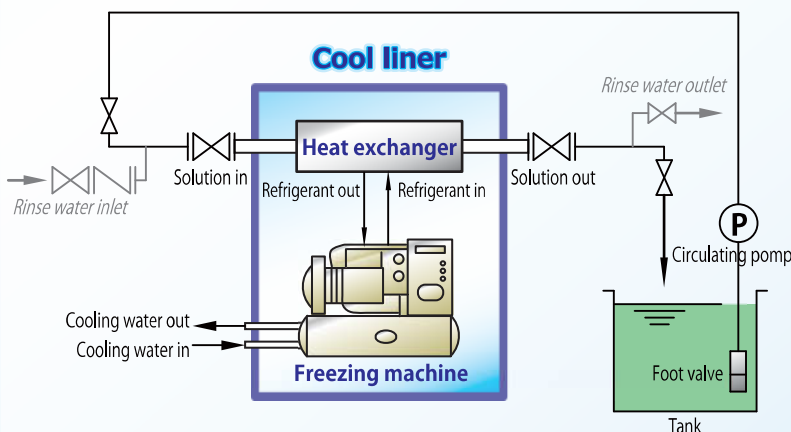
■ Cool liner (Direct cooling)



■ Chiller + Heat exchanger (Indirect cooling)



Flow · Structure



※ Please install rinse water inlet and outlet if necessary.

■ How to operate

- ① Confirm cycle of cooling water for freezer machine
- ② Confirm cycle of solution
- ③ Turn on main power
- ④ Turn on On/Off switch

※ Operate in reverse (4-3-2-1) at the end of the setting for automatic temperature control

※ Turn on the thermal switch one hour before work, if it is over 10HP.

Suits for any type of solution

■ Plating solution applicable to

- Oxalic acid for anodizing
- Sulfuric acid for anodizing
- Chrome finishing
- Acidic tin plating
- Zinc plating
- Copper sulfate etc.

■ Corrosion resistant materials

Corrosion resistant materials such as titanium, niobium, zirconium and stainless steel 316L can be selected for the heat exchanger according to the type of plating solution.

■ A lot of experience

We have many years experience in the surface finishing industry. Standard product is applicable to 20°C, however, lower application such as 0°C are available as well. To have larger heat exchanger area, we offer the design with multiple columns according to the condition. (The equipment in the photo is one such example.)



SZ-5HP non-standard (low temperature application) in the process of production

Checkup and maintenance

It is recommended for users to check and record data routinely by themselves to ensure safe operation. Routine checkups lead to early detection of abnormalities and minimize the effect on shutdown. Please contact SPF if any maintenance is required as a result of a checkup.

■ Confirm value of operating current

Normal range: horsepower x 3~4 Amp

■ Confirm value of operating pressure

High pressure: 1.275MPa ~ 1.667MPa
Low pressure : 0.245MPa ~ 0.441MPa
(Varies depending on the season and load.)



■ Chiller compressor

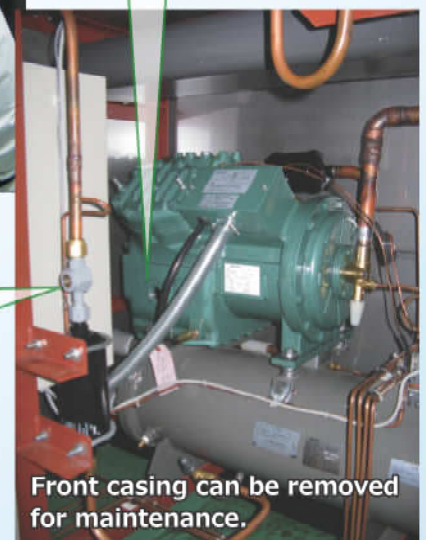
Confirm oil level and turbidity from sight glass.

■ Confirm the tube for refrigerant: sight glass

If refrigerant is in normal condition, it looks water-clear. On the other hand, If there is any turbidity with bubbles, the heat exchanger may be stained or out of cooling gas.

■ Confirm the tube for refrigerant: grease

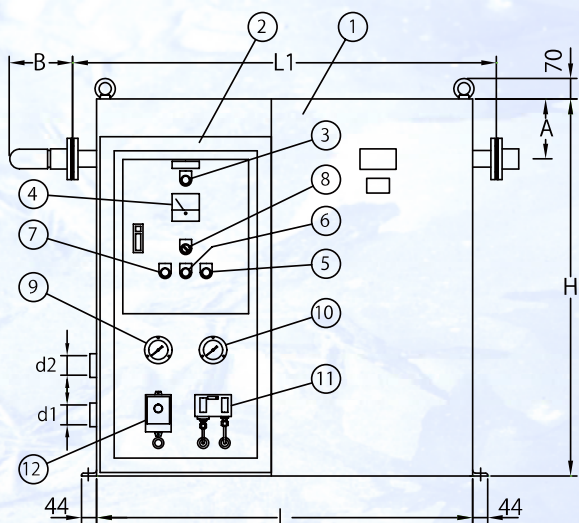
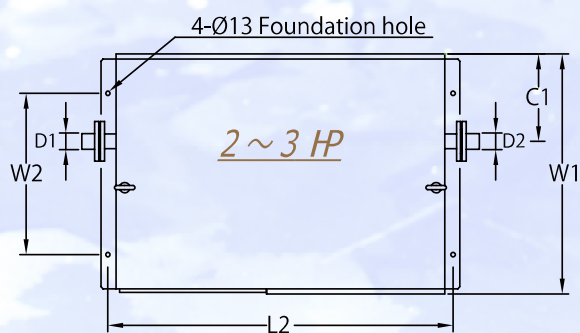
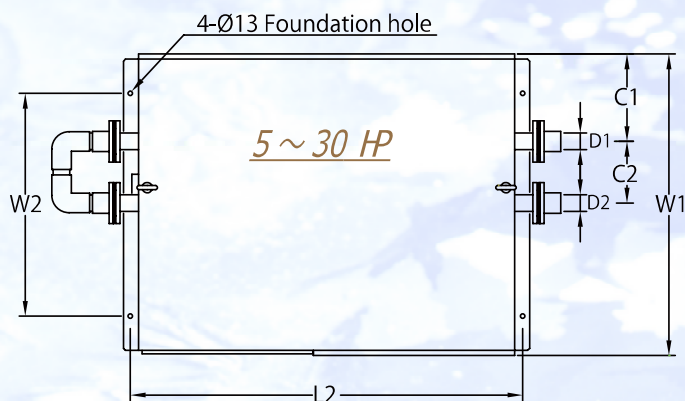
If there is any grease on the surface of tube joint area, it may cause gas leakage.



Front casing can be removed for maintenance.

※It is recommended to wash the tank of cooling tower about once a month to remove scale inside the tank and prevent strainer and spray pipe from clogging.

Specification



No.	Name
1	Body
2	Control panel
3	Source pilot lamp
4	Ammeter
5	Cooling pilot lamp
6	Thermal abnormality warning lamp
7	Pressure abnormality warning lamp
8	Power switch
9	Low pressure compound gauge
10	High pressure gauge
11	Low/High pressure switch
12	Heat regulator

Code HP (KW)	L	L1	L2	W1	W2	H	A	B	C1	C2	Solution		Cooling water	
											in D 1	out D 2	in d 1	out d 2
2 (1.5)	1000	1100	1048	730	500	1000	183	--	270	--	25A	25A	25A	25A
3 (2.2)	1000	1100	1048	730	500	1000	178	--	270	--	32A	32A	25A	25A
5 (3.7)	1150	1290	1198	880	650	1100	175	190	240	180	40A	40A	32A	32A
7.5 (5.5)	1150	1290	1198	880	650	1100	175	190	240	180	40A	40A	40A	40A
10 (7.5)	1200	1340	1248	930	700	1200	175	190	250	180	40A	40A	50A	50A
15 (10.8)	1200	1340	1248	930	700	1200	169	220	250	200	50A	50A	50A	50A
20 (7.5×2)	2100	2250	2160	1280	950	1250	186	250	310	450	65A	65A	50A×2	50A×2
25 (7.5+10.8)	2100	2250	2160	1280	950	1250	186	250	310	450	65A	65A	50A×2	50A×2
30 (10.8×2)	2100	2250	2160	1280	950	1250	186	250	310	450	65A	65A	50A×2	50A×2

※ This specification is according to the specification of water-cooling chiller made by Sanyo. In case of air-cooling and non-standard, the specification differs from above.

※ This specification is subject to change for improvement.



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