
Water Oil Coolers

HPC/HGPC Series - Plate Coolers

HSC Series - Shell & Tube Coolers

HLDA Series - Chiller



What is a water-cooled cooler?

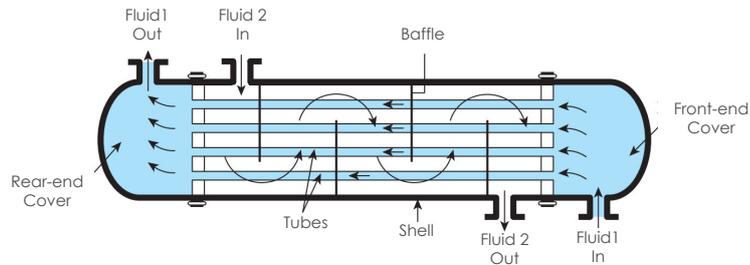
Just as the purpose of air-cooled coolers, the purpose of a water-cooled cooler is to optimize the heat management of oil and maintain the performance and lifespan of hydraulic systems. However, unlike air-cooled coolers, water-cooled coolers use water as a cooling medium, and in places where water resources are abundant, water-cooled coolers are widely used.

Water-cooled coolers can be classified according to their structure, and are generally divided into 1) tubular coolers, 2) plate coolers, and 3) chillers.

Tubular cooler

Tubular coolers are divided into double pipe, shell and tube, and coiled tube types, and Hydrolinc supplies shell and tube products.

In the process industry, shell and tube heat exchangers are used much more frequently than other types. More than 90% of tubular coolers used in the industry are of the shell and tube type. Shell and tube heat exchangers used in various industries have the most well-established standards for design and manufacturing using various materials, and are therefore produced in the widest range of sizes and types. Our products include the **HSC Series**.



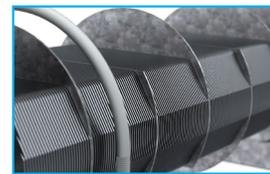
General structure of shell and tube



Copper-Aluminum Finned Tube



Cross section



Copper-Aluminum Plate Tube

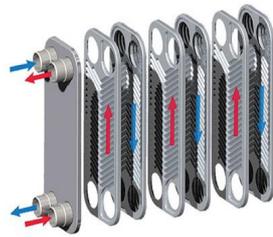
Our **HSC Series** shell and tube product uses an extrusion fin-tube type and Aluminum plate tube type, which minimizes the thermal resistance coefficient between the copper tube and aluminum fin to maximize heat performance. The finned and plate tube generates turbulence in the fluid flow, allowing efficient transfer of heat from the fluid to the tube, thus maximizing heat exchange performance.

Plate coolers

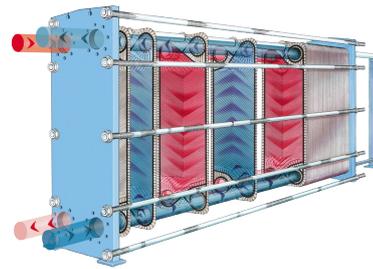
Plate-type coolers offer several important advantages but are less commonly used than shell-and-tube heat exchangers. Plate-type coolers can be classified into three types:

1. Brazed plate coolers, gasketed plate coolers: used in liquid-liquid heat exchange applications at low and medium pressures and are an alternative to shell-and-tube coolers.
2. Spiral plate coolers: used for fluids containing sludge or viscous impurities and are an alternative to shell-and-tube coolers in locations where little maintenance is required.
3. Panel coil coolers: made by forming a double pipe or coil of liquid combined with fins using angled plates.

Our Brazed Plate Cooler and Gasketed Plate Cooler are the main types of plate heat exchangers. The biggest advantage of a plate heat exchanger is its high heat transfer performance compared to its compact size. This is because the fluid flowing along the angled shape of the plate generates high turbulence, leading to high heat transfer performance. Depending on the method of joining plates with different angled shapes, plate heat exchangers can be divided into two types: brazed plate heat exchangers, where welding material is melted in a high-temperature chamber to join the plates, and gasketed plate heat exchangers, where a gasket is inserted between the plates and compressed by front and back covers. Our company's Brazed Plate Cooler is the **HPC Series**, and the Gasketed Plate Cooler is the **HGPC Series**.



Brazed Plate Cooler

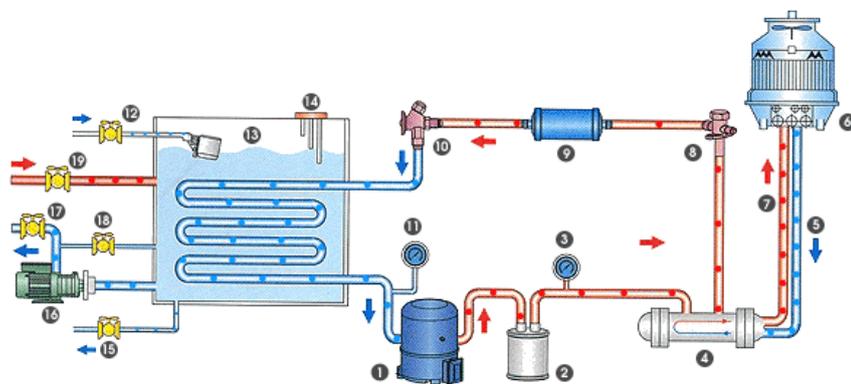


Gasketed Plate Cooler

Chiller

A chiller is a mechanical refrigeration device that cools water, air, or other liquids, using a compressor, evaporator, condenser, refrigerant, and other components. The core technology of a chiller typically lies in its control system, which manages and optimizes the performance of the chiller, including temperature control, flow control, and pressure control.

Many modern chillers are equipped with advanced energy-saving technologies, such as variable speed drives and high-efficiency compressors, to reduce energy consumption and operating costs. They are also designed to withstand harsh industrial environments with durable structures, corrosion-resistant materials, and stable performance and lifespan. Therefore, despite being more expensive than other heat exchangers, there is an increasing demand for chillers that guarantee robust structure, corrosion-resistant materials, and stable performance and lifespan. Our chiller products include the **HLDA series**.



- | | | | |
|----------------------------|------------------------|----------------------|-----------------------|
| ① Compressor | ⑥ Cooling Tower | ⑪ Low-Pressure Gauge | ⑱ Circulation Pump |
| ② Oil Separator | ⑦ Cooling Water Return | ⑫ City Water Supply | ⑲ Cooled Water Supply |
| ③ High-Pressure Gauge | ⑧ Shut Off Valve | ⑬ Evaporator & Tank | ⑳ Cooled Water Return |
| ④ Condenser (Shell & Tube) | ⑨ Filter Dryer | ⑭ Level Sensor | ㉑ By-Pass Valve |
| ⑤ Cooling Water Supply | ⑩ Expansion Valve | ⑮ Drain Valve | |

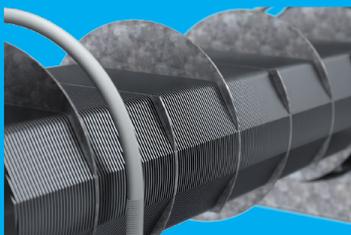
HSC Series

Shell & Tube Coolers



Water Oil Coolers

Features



Aluminum Plate

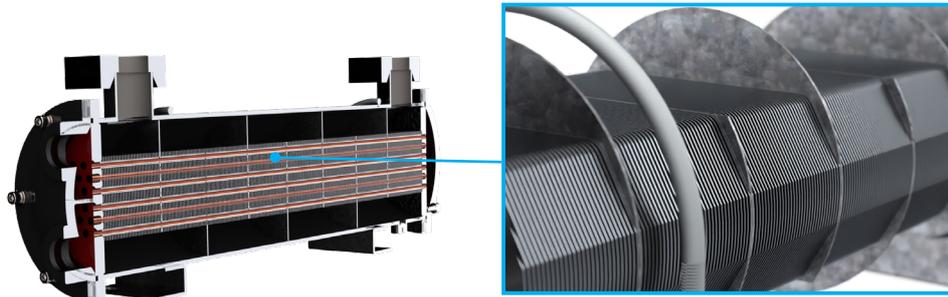
- Optimized design through fluid analysis
- Customizable production tailored to various customer usage environments
- General industrial, marine, and specialized heat exchangers available

Quick Overview Shell and tube heat exchangers are the most widely used industrial heat exchangers and are generally capable of delivering stable heat exchange performance in the most severe environmental conditions. The HSC Series provides both standard products applicable to various industrial environments and custom-made models designed for special environments.

HSC Materials

Parts	Materials
Shell	Carbon(34CrMo4)/Stainless steel (SUS304/316L)
Covers	FC20/BRASS/SUS304
Tube sheet	SS400/BRASS/SUS304/SUS316L
Tubes	COPPER-TP2Y2/Cu90-Ni10/ Cu70-Ni30/SUS304/SUS316L
Baffles	SS400/SUS304
Aluminum Fin	1080A

* Other materials may be changed according to customer request.



Ordering code

Example: HSC - T - 8 - 850 - S
1 2 3 4

1 Series	
T	General Industrial (Hydraulic & Lubrication)
T2	Marine/Seawater
T3	Inter & After Cooler
T4	Condensor

2 Shell size	
Code	Diameters
3	Ø89.1 mm
4	Ø114.3 mm
5	Ø139.8 mm
6	Ø165.2 mm
8	Ø219.0 mm
10	Ø273.0 mm

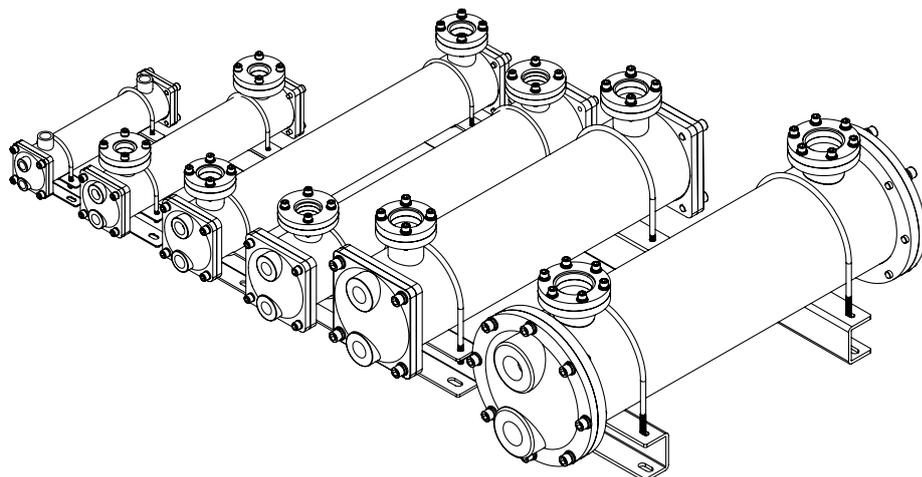
3 Tube length		Model					
Code	Length	3	4	5	6	8	10
340	340 mm		●				
370	370 mm	●					
450	450 mm		●	●			
460	460 mm	●					
530	530 mm		●				
550	550 mm	●					
680	680 mm			●	●		
850	850 mm				●	●	
870	870 mm			●			
970	970 mm				●	●	●
1200	1200 mm					●	●
1500	1500 mm						●

* Customization is available beyond standard specifications.

4 Connection type	
Type	
S	Socket
F	Flange

Model	Connection sizes			
	Oil		Water	
	Socket	Flange	Socket	Flange
3	PT 1"	-	PT 1/2"	-
4	PT 1 1/4"	32A	PT 3/4"	-
5	PT 1 1/2"	40A	PT 1"	-
6	PT 2"	50A	PT 1"	-
8	PT 2 1/2"	65A	PT 1 1/4"	-
10	PT 3"	80A	PT 2"	-

* Please consult with the sales department for other types of port.



Water Oil Coolers

Specifications

1. Performance



	Shell Side	Cover Side
Max. Working pressure	15 bar	10 bar
Max. Test pressure	22 bar	15 bar
Max. Working temperature	100°C	100 °C
Number of the fluid channels	1 Pass	2 Pass

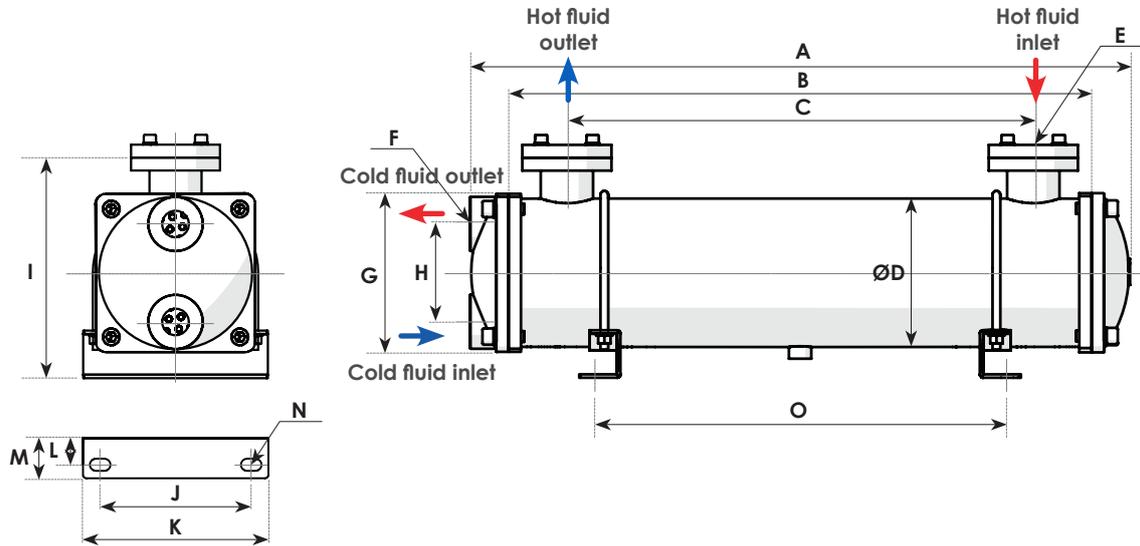
Performance curve conditions: Fluid: VG32 / Fluid temperature: 60°C, Cooling water temperature: 32°C / Flow rate ratio: Fluid: Cooling water = 2:1

Model	Flowrate (L/min)		Pressure drop(bar)		Heat Transfer		Area m ²	Net Weight Kg
	Oil	Water	Oil	Water	Kcal/hr	Kw		
HSC-T-3-370-S			0.86	0.60	11,600	13	0.8	9
HSC-T-3-460-S	110	65	0.99	0.70	12,400	14	1.0	10
HSC-T-3-550-S			1.12	0.80	13,300	17	1.2	11
HSC-T-4-340-S			0.95	1.25	22,200	26	1.2	18
HSC-T-4-450-S (F)	200	118	0.97	1.33	25,200	29	1.6	19
HSC-T-4-530-S (F)			1.04	1.40	28,100	33	1.9	20
HSC-T-5-450-S (F)			1.11	1.44	35,400	41	2.1	26
HSC-T-5-680-S (F)	280	145	1.16	1.71	43,600	51	3.3	28
HSC-T-5-870-S (F)			1.21	1.97	51,800	60	4.1	30
HSC-T-6-680-S (F)			1.29	0.98	53,600	62	5.2	41
HSC-T-6-850-S (F)	320	240	1.45	0.99	61,100	71	6.6	46
HSC-T-6-970-S (F)			1.61	1.00	68,600	80	7.5	50
HSC-T-8-850-F (S)			1.62	1.42	115,000	134	11.4	91
HSC-T-8-970-F (S)	520	350	1.97	1.47	131,700	153	13.1	96
HSC-T-8-1200-F (S)			2.23	1.62	147,600	172	16.9	102
HSC-T-10-850-F (S)			1.19	0.95	179,300	208	21.9	155
HSC-T-10-970-F (S)	760	600	1.23	0.99	199,200	232	25.2	176
HSC-T-10-1200-F (S)			2.10	1.12	229,100	267	31.6	215
HSC-T-10-1500-F (S)			2.63	1.28	259,000	301	40.0	266

S: Socket / **F:** Flange

* The specifications above may be subject to change without prior notice for quality improvement purposes.

2. Dimensions

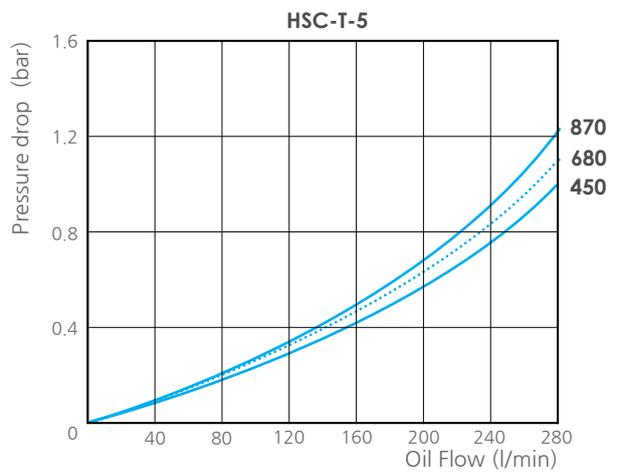
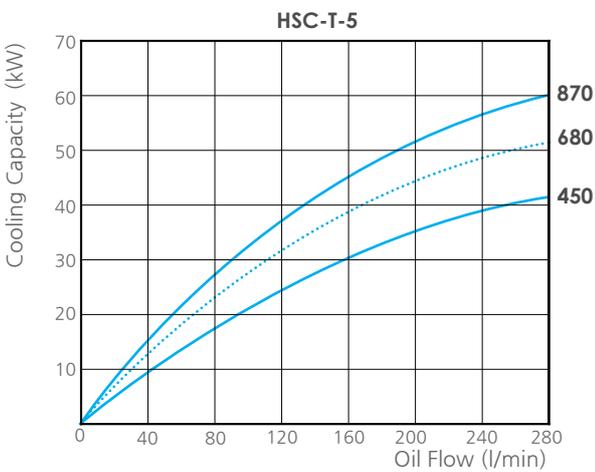
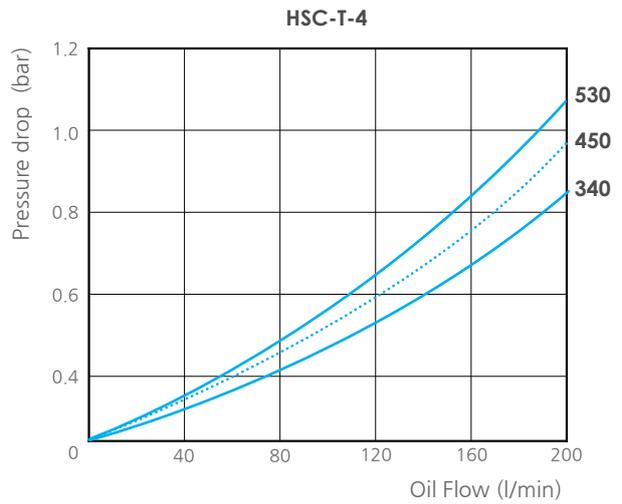
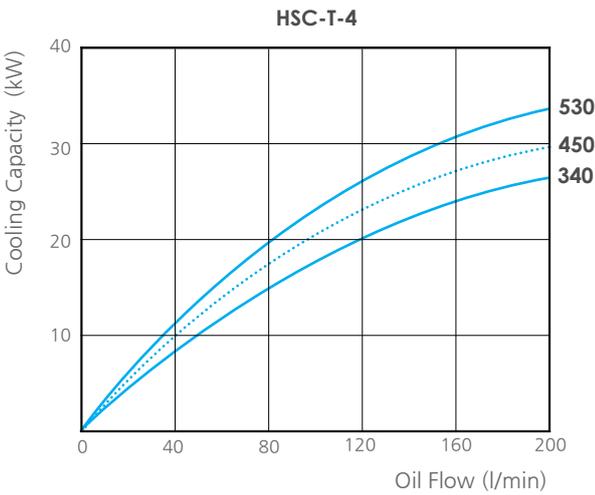
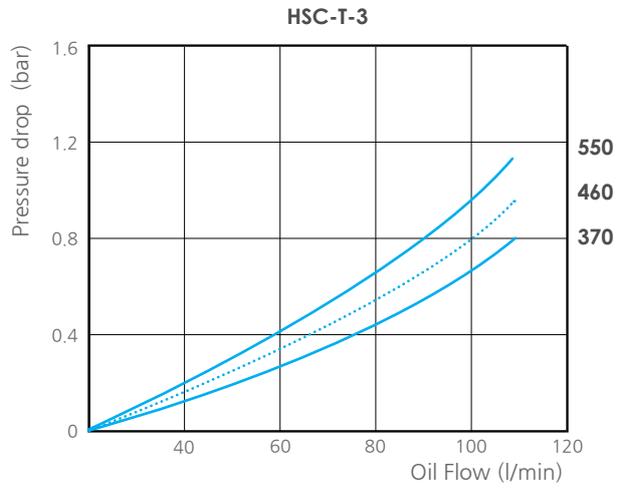
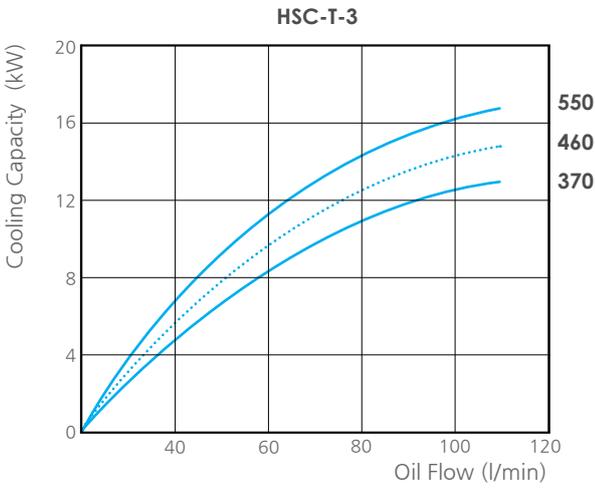


Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
HSC-T-3-370-S	422	370	258												465
HSC-T-3-460-S	512	460	348	Ø89.1	PT 1	PT 1/2	100	50	159	100	154	19	32	11x24	545
HSC-T-3-550-S	602	550	438												635
HSC-T-4-340-S	392	340	216												146
HSC-T-4-450-S (F)	502	450	326	Ø114.3	PT 1 1/4 (32A)	PT 3/4	125	66	208 (228)	105	170	28	50	13x25	256
HSC-T-4-530-S (F)	582	530	406												336
HSC-T-5-450-S (F)	520	450	340												274
HSC-T-5-680-S (F)	750	680	570	Ø139.8	PT 1 1/2 (40A)	PT 1	152	88	242 (267)	127	209	27	50	14x25	494
HSC-T-5-870-S (F)	940	870	760												684
HSC-T-6-680-S (F)	766	680	517												429
HSC-T-6-850-S (F)	936	850	690	Ø165.2	PT 2 (50A)	PT 1	180	104	274 (294)	167	210	23	50	15x40	599
HSC-T-6-970-S (F)	1056	970	807												719
HSC-T-8-850-F (S)	962	850	680												580
HSC-T-8-970-F (S)	1082	970	800	Ø219.0	65A (2 1/2)	PT 1 1/4	233	144	396 (354)	200	280	40	70	18x30	724
HSC-T-8-1200-F (S)	1312	1200	1030												954
HSC-T-10-850-F (S)	1004	850	634												502
HSC-T-10-970-F (S)	1124	970	754												622
HSC-T-10-1200-F (S)	1354	1200	992	Ø273.0	80A (3)	PT 2	360	172	434 (409)	300	360	39	70	18x38	852
HSC-T-10-1500-F (S)	1654	1500	1284												1152

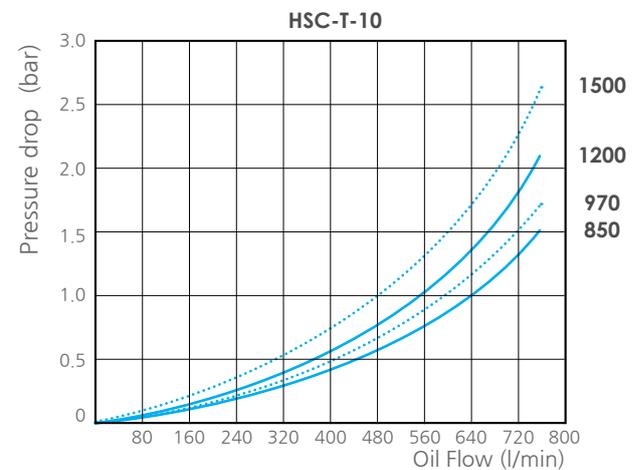
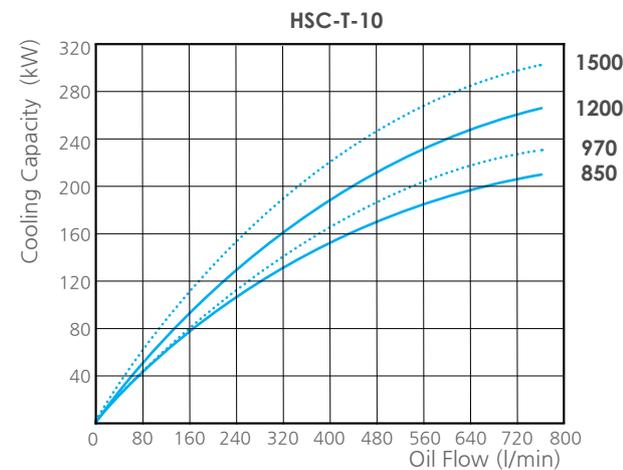
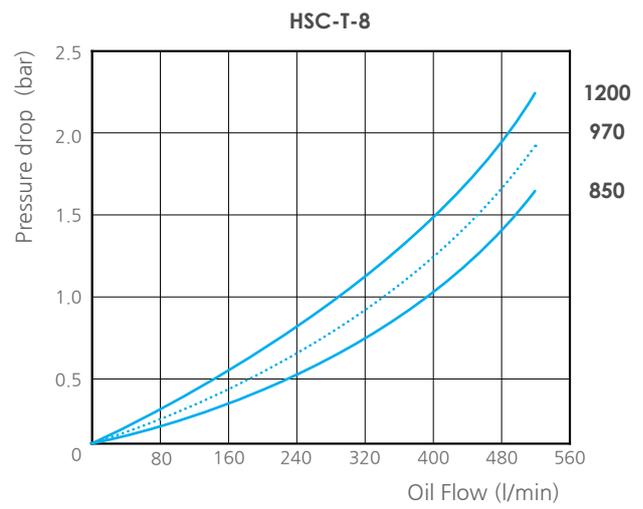
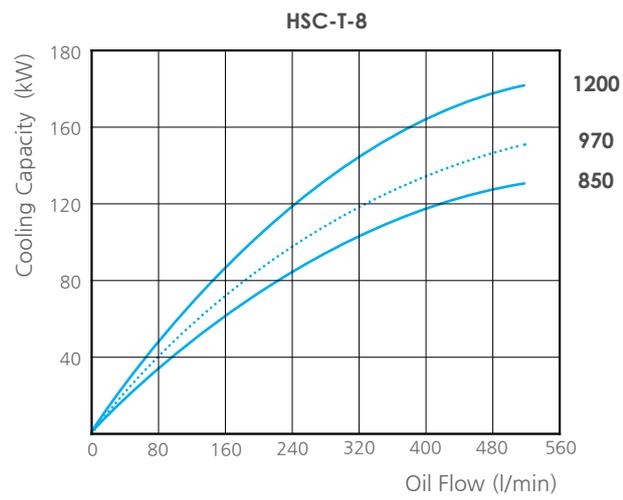
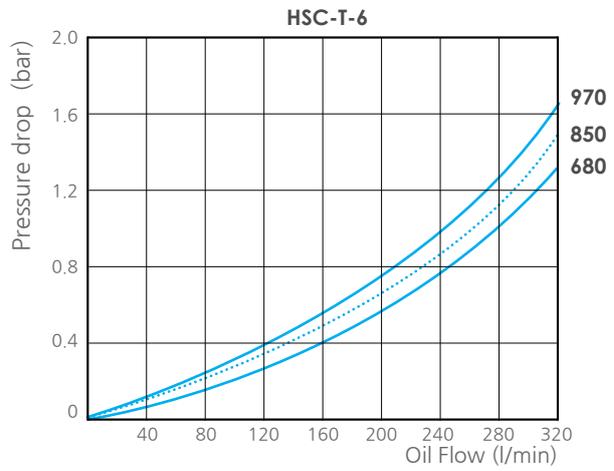
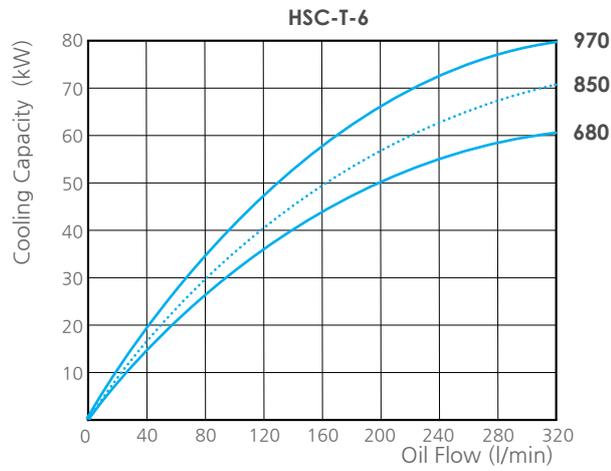
S: Socket / F: Flange

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Performance curves



Performance curve conditions: Fluid: VG32 / Fluid temperature: 60°C, Cooling water temperature: 32°C / Flow rate ratio: Fluid: Cooling water = 2:1

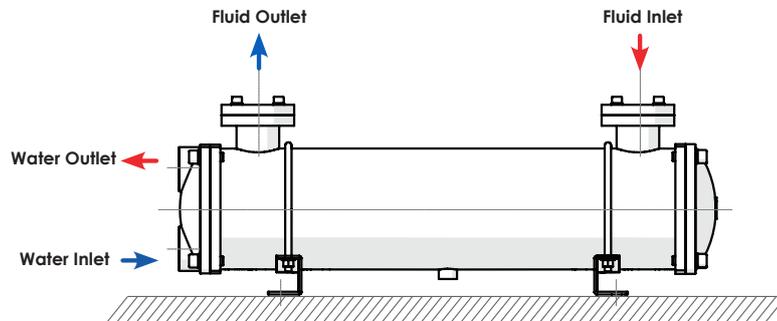


Performance curve conditions: Fluid: VG32 / Fluid temperature: 60°C, Cooling water temperature: 32°C / Flow rate ratio: Fluid: Cooling water = 2:1

Installation and maintenance

Installation

The internal structure of the HSC product is designed for optimal heat exchange performance when installed horizontally. Please ensure that it is installed parallel to the ground.



Antifreeze and Corrosion Prevention

To prevent internal corrosion when the HSC product is not in use, it is essential to drain the water and ensure it is thoroughly dried. Particularly during winter, freezing can occur, potentially damaging the product. To prevent freezing, it is necessary to add antifreeze to the coolant or implement appropriate insulation measures.

Regular Inspection

The HSC product requires regular inspections to ensure the cooling performance is maintained. Internal inspections should be conducted once every quarter and involve checking for corrosion, leaks, seepage, and foreign substances. Here are the steps for conducting the internal inspection:

- 1) Disconnect and isolate all circuit lines connected to the HSC product.
- 2) Remove both the front and back covers of the coolant side.
- 3) Check the oil side for any foreign substances using a bright light source.
- 4) Examine the coolant side for corrosion or foreign substances using a bright light source.

Maintenance

When encountering issues during regular inspections, the following actions should be taken:

1. If foreign substances are found on the oil side: Connect the HSC product to a closed circuit and circulate perchloroethylene for cleaning. After cleaning, wash the oil side again to remove any remaining foreign substances.
2. If foreign substances are found on the coolant side: Consider the length of the pipe and remove foreign substances using a cleaning brush. Then, use a high-pressure washer to clean the interior of the pipe.
3. If leaks are detected: Check the sealing condition of the oil-side connection port and drain port. If necessary, replace the O-rings and seals with new ones.
4. If leakage is detected: Coolant-side leakage may be caused by corrosion or cracks in the pipe. If the cause is identified, replace the product with a new one.

Leakage Inspection

Before connecting the product to the hydraulic circuit after maintenance completion, be sure to conduct an inspection.

1. Seal the oil side and inject approximately 20 bars of air.
2. For HSC products, immerse them in a tank with added antifreeze and check for the occurrence of bubbles..
3. Once it is confirmed that everything is in order, proceed to connect the HSC product to the existing circuit for normal usage.

Product Selection Chart

Name		Date	
address		Email	
Tel/Fax			
Person in charge		CC.	

	Fluid	Water
Fluid type		
Max. temperature in operation	°C	°C
Inlet temperature	°C	°C
Outlet temperature	°C	°C
Max. flowrate	L/min	L/min
Max. pressure drop	bar	bar
Main Power of Hydraulic System		kW
Required Cooling Heat Exchange Capacity		kcal/hr

Installation Environment and Additional Requests	
Environment	<input type="checkbox"/> Indoor <input type="checkbox"/> Outdoor
System type	
HSC Products	<input type="checkbox"/> T - General <input type="checkbox"/> T2 - Marine <input type="checkbox"/> T3 - Inter & After Cooler <input type="checkbox"/> T4 - Condensor
Piping Connections	<input type="checkbox"/> Socket <input type="checkbox"/> Flange / Size: _____
Shell side material	<input type="checkbox"/> HSC standard <input type="checkbox"/> Stainless <input type="checkbox"/> Other: _____
Tube side material	<input type="checkbox"/> HSC standard <input type="checkbox"/> Stainless <input type="checkbox"/> Other: _____
Paint	<input type="checkbox"/> HSC standard <input type="checkbox"/> Other: _____
Other requests	

Water Oil Coolers



“Engineering Excellence! We are always prepared to promptly address our customers’ needs.”

Contact us

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