



Application & Selection Catalogue

Heat Transfer Oil
Oil Maintenance





Heat Transfer Oil

In production where high processing temperatures are necessary (140-310°C) there is an option of using special types of oil, heat transfer oil, as heating medium instead of water and steam. Oil has the advantage that it does not boil at these temperatures, giving less restrictions to the overall system compared to a water/steam system. The process itself can be many different things and heat transfer oil systems are found in various industries with very diverse productions, including:

- Food processing industry
- Petrochemical industry
- Heating of houses
- Steam production
- Rubber and plastic industry
- Oil industry
- Paper industry
- Ferry boats
- Wood industry
- Laundry services

... and many more!

The heat transfer oil systems are normally quite large, and the standard CJC™ Heat Transfer Oil fine filters are dimensioned up to oil volumes at 100,000 L.



Key Decision Figures for CJC™ filters:

- Environment (Installation)
- Oil Viscosity
- Oil Volume

Heat Transfer Oil Questions

Introduction examples of investigating questions to use for production with a heat transfer oil system:

- How do you do oil maintenance today? (Service intervals? Manpower spent?)
- How often do you perform an oil change?
- What is the greatest challenge in your production?
- What does downtime and unplanned breakdowns cost per hour?
- How is the efficiency of your Heat Transfer System?



The Problem

Heat transfer oil is difficult to keep clean and often contains large quantities of dirt and oxidation residues. This is mainly caused by the very high process temperature of up to 310°C which also breaks down additives, reduces the flashpoint, thus increasing the risk of self-ignition. Dirt in the heat transfer oil plant negatively affects the system, through fluctuating heat emittance increased energy consumption in daily use.

- High process temperature – creating carbon deposits, sludge and varnish
- Degradation of the oil – reducing the flash point
- Dirt in the heat transfer oil increases energy consumption

Consequences:

- Break down of additives and the oil itself, meaning frequent oil change
- Reduced flash point gives a high risk of self-ignition, hence increases risk of fire in the production



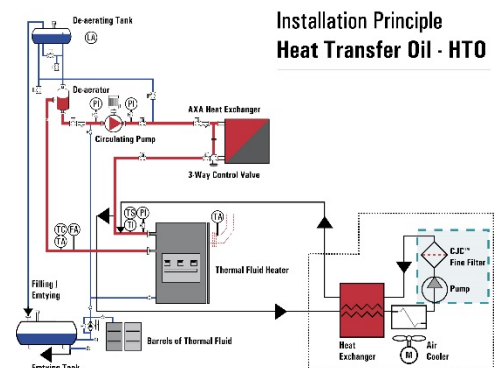
All these increase maintenance costs, production costs and enhance the risk of the employees.

The solution

The CJC™ Heat Transfer Oil fine filter is used for the maintenance of heat transfer oil in central heating systems and where high processing temperatures are necessary. The CJC™ Heat Transfer Oil fine filter is ideal for removal of particles and oil degradation products and for raising the flash point. By reducing the particles, sludge and varnish amount the heat distribution will also be more homogeneous thus giving lower energy consumption in general.

When installing CJC™ Heat Transfer Oil fine filter you get a more stable process, and by reducing the contamination amount you also increase the lifetime of heat transfer oil.

The CJC™ Heat Transfer Oil fine filter cools down the oil to around 150°C and then sends it through the filter, afterwards the oil is reheated and send back to the main system, preferably close to the suction line of the main system pump.





Filter Selection – Heat Transfer Oil

The filter selection is based on the following parameters:

Oil type		Heat Transfer Oil
Ambient temperature		Max. 40°C
Operation temperature oil	Min. 80°C	Max. 300°C
Circulation ratio	Flow	5-10 % of volume
Pressure Inlet		Max. 2 bar
Design pressure		Max. 4 bar

If these parameters are not met then a specific selection is required. This will add costs for the customer.

	HTO15	HTO30	HTO60	HTO100
Base product	HTO HP 1 x 27/108 GP	HTO HP 2 x 27/108 GP	HTO HP 3 x 27/108 GP	HTO HP 4 x 27/108 GP
System Volume (L)	< 15,000	< 30,000	< 60,000	< 100,000
Pump flow (L/hr)	900	1700	3400	5200
Power consumption				
No. of Inserts + type	4 x F 27/27	8 x F 27/27	12 x F 27/27	16 x F27/27
Pump Type	GP 26-6	GP 33-6	GP 41-6	GP 41-4
Dirt Capacity	16	32	48	64
Operational weight	647	1128	1598	
Extras	heat exchanger and air blast cooler	heat exchanger and air blast cooler	heat exchanger and air blast cooler	heat exchanger and air blast cooler
Dimensions, mm	1100x2000x1910	1100x2450x1850 + 980 free	1100x3000x1870 + 575 free	1100x3000x1870 + 575 free
Item No.	3x400V, 50 Hz: FA76 17 007	3x400V, 50 Hz: FA76 17 006	3x400V, 50 Hz: FA76 17 005	3x400V, 50 Hz: FA95 02 234

Can also be ordered with 3x480V, 60 Hz. voltage supply.



References

The CJC™ Heat Transfer Oil fine filter increases safety and reliability in production. Here are some of the examples where The CJC™ Heat Transfer Oil fine filter has helped companies:

Daloon in Nyborg, Denmark



Problem:

It was difficult to keep the heat transfer oil clean, and the dirt amount affected the entire system, where the fluctuating heat emittance increased energy consumption.

Solution:

The CJC™ Heat Transfer Oil fine filter < 15,000 (HTO15) Large savings in energy and the original flash point of the oil has been restored.

McCain Foods Holland, Netherlands



Problem:

Heat transfer ability of the fluid was compromised by high oil contamination levels, causing increased energy consumption and temperature fluctuations in the heaters.

Solution:

The CJC™ Heat Transfer Oil fine filter < 60,000 (HTO60) The first set of filter inserts was saturated within hours, with a gross weight of the contamination at more than 100 kg.

The Maintenance Manager Meindert Kramer stated:

The heater has a stable stoke characteristic and the temperature is constant.

No more alarms and unplanned stops due to high temperature of the furnace.

Return of investment within one year due to less energy consumption, extended service intervals, extended life time of the fluid, spare parts and manpower.