Coolant Treatment

COOLANT TREATMENT

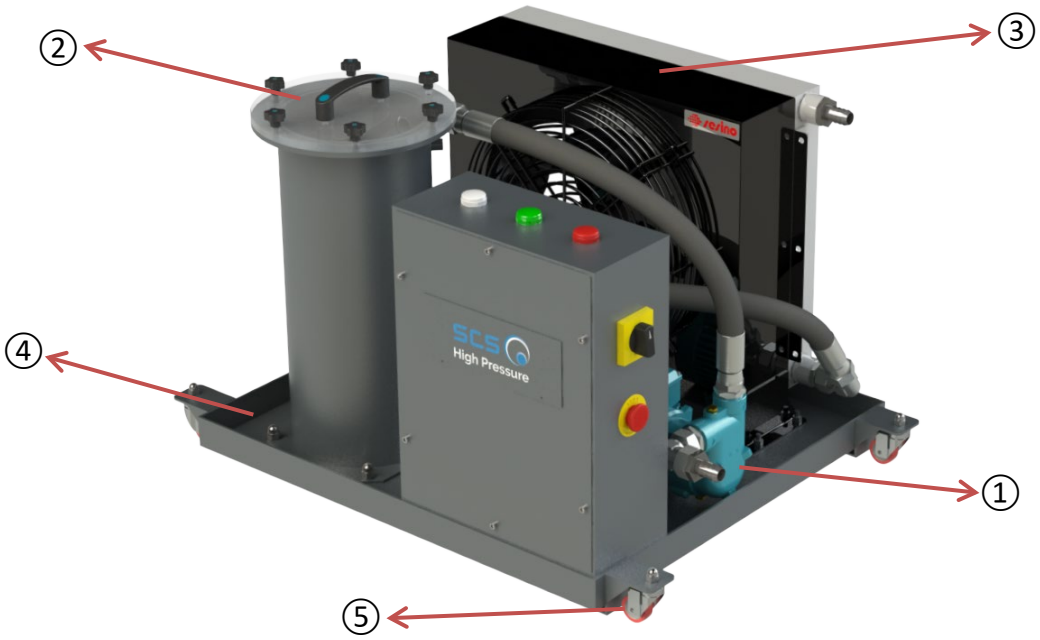
HEAT EXCHANGER WITH FILTRATION FOR BETTER TEMPERATURE CONTROL AND REFRIGERANT QUALITY

PRODUCTIVITY AND SAFETY IMPROVEMENTS IN CNC MACHINE-TOOLS

https://scs-hp.com/shop/en/
info@scs-hp.com
+34-934751480

Coolant Treatment

Cost effective solution for temperature control and high-quality filtration for cutting oil or emulsion, improving machining efficiency and tool life.



How it Works?

① Transfer pump

- Self-aspirating centrifugal transfer pump. Aspirates the cutting fluid (oil or emulsion) from the machine-tool tank and into the filter.

② Filtration system

- Bag type filter (25 µm standard) that supplies clean cutting fluid through the heat exchanger.
- The transparent cover allows for quick visual inspection of the filter's condition, and the knobs facilitate super quick filter exchange.
- The filter includes a precision programmable digital pressure sensor that will show an alarm and stop the unit automatically when the filter gets clogged and pressure exceeds the pre-set value.

③ Heat Exchanger (Overdimensioned coil and fan for effective ambient air to oil/emulsion heat removal)

- The clean cutting fluid coming from the filter enters the heat-exchanger for heat rejection.
- The heat-exchanger includes a programmable precision digital control to setup the target temperature. Refrigerant temperature will depend on ambient air temperature.

④ Containment tray

- All the components of the SCS Heat Exchanger and Filtration System are mounted in a sealed tray which includes a level switch that prevents undesired cutting fluid spills in case of leaks.

⑤ Casters

- Caster mounted on all 4 corners of the tray allow for easy move for cleaning and maintenance operations.
- The casters can be mounted either longitudinal or laterally to the SCS Cooling and Filtering System for layout flexibility.

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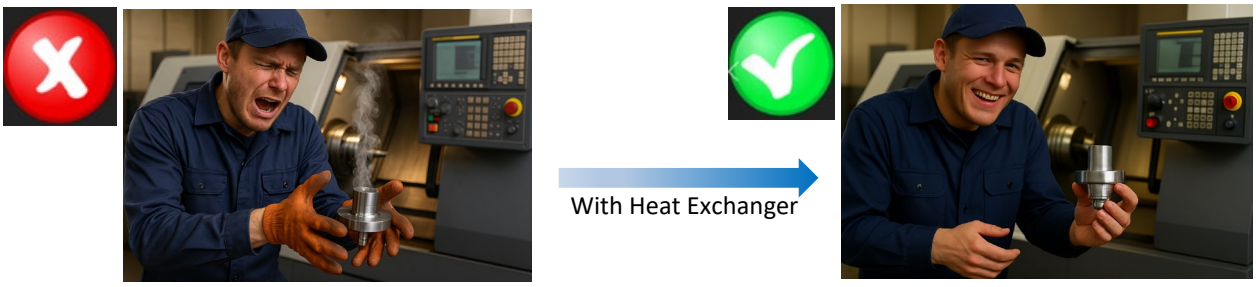
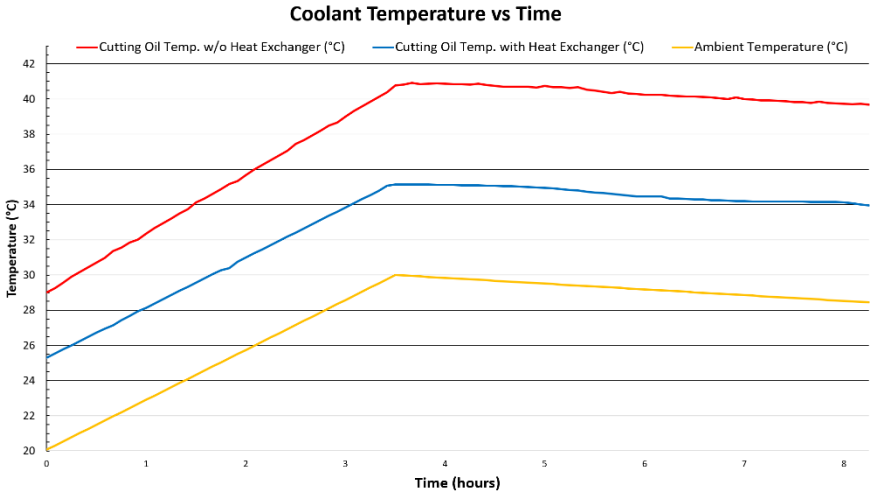
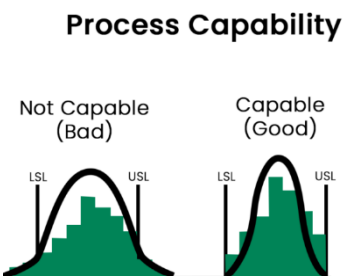
The Heat Exchanger and Filtering system is easy to integrate in any machine-tool. It ensures significantly lower temperature of the refrigerant, fine filtration and overall performance and reliability improvements in your machining process.







Key benefits:

① Better machining precision

- Maintains a smaller temperature differential with ambient temperature, reducing dimensional variations due to thermal expansion and greatly improving machining accuracy.

② Improved cutting fluid quality

- Prevents bacterial growth in water-based cutting fluid, reducing the risk of odor and respiratory health issues.
- Reduces the cutting oil viscosity variation, ensuring proper lubricity and cooling performance.
- Reduces cutting fluid loss due to evaporation, keeping emulsion concentration more stable and diminishing the need to refill the machine-tool tank, thus reducing downtime.

③ Safer work environment

- Reduces cutting oil or emulsion vapor emissions, protecting operators from inhaling harmful fumes.
- Less oil mist in the ambient helps avoid slippery floor and potential accidents.
- Reduces the risk of potential skin burns when touching super-hot machined parts or machine surfaces.
- Helps prevent skin irritations from contact with incorrect emulsion concentration.

④ Better machine-tool reliabily

- Prevents cables and other machine-tool components from bein damaged by contact with super-hot cutting fluid.
- Fine filtration of cutting fluid avoids clogging of internal turret connection such as tool holders and prevents premature failure of components like rotary joints, and spindle bearings, etc.

Specifications:	SCS-122-SBF
Transfer Pump Type	Centrifugal pump
*Cooling capacity	0.40 to 0.55 kW/ºC
Heat exchanger Air flow	2750 m^3/h
Operating temperature	+5 ºC to +55 ºC
Inlet fitting	G 1 1/4" (M)
Outlet fitting	G 1" (M)
Maximum distance from the machine-tool tank	4 m
Filter Type	Bag-type filter (25 µm)
Filter clog visualization	Pressure gauge
Filter clog detection	Programmable pressure sensor with screen
Casters	For easy movement
Type of connector	Harting 24-pin
Rated Power	0.75 kW
Voltage and Frequency	3 x 400V / 50Hz
Net weight	105 Kg
Dimensions (L x W x H)	940 x 699 x 606 mm
Color	RAL 7016 (Dark grey)

*Note: The heat rejection capacity depends on the differential temperature between the ambient temperature and the temperature of the cutting fluid. For each 1ºC increase in the differential between the ambient temperature and the cutting fluid, the heat rejection capacity will be 0.40 to 0.54 kW (depending on the type of fluid and refrigerant flow). In the case of a 10ºC differential temperature, the heat rejection capacity will be 4.0 to 5.4 kW.

Standard equipment:

1. Casters for easy movement of the SCS Chiller and filtration unit.
2. Spare bag-type filter (25 µm).
3. 16-pin Harting connector (male and female air surface mount on cooler) including power and START/STOP signal.
4. Packing secured on pallet.

Optional equipment:

1. Connection kit from machine-tool tank to SCS Heat Exchanger and filtration unit.
2. Special pump for applications with cutting oil with high content of air in suspension (normally when high-pressure pump is installed).