Thermoelectric Liquid Recirculating Chiller

CFC-750-TE-AIC

Features

- Precise temperature control
- Green devices
- Reliable solid-state operation
- Low noise producing
- Compact design
- Low fluid level warning

Applications

- Thermal stabilization of DPSSL
- Medical Imaging Systems
- Analytical & Industrial Instrumentation
- Laboratory applications
- Biomedical Systems
- Food industry

The chiller is a solid-state (thermoelectric) heat pump that removes heat through a liquid (coolant) into the ambient air through Peltier modules. The chiller does not have a compressor, freon or other refrigerant. The active elements that dissipate heat are the Peltier module. Low-inertia thermoelectric modules (Peltier), controlled directly by direct current, allow maintaining the temperature of the liquid in the circulation circuit with an accuracy of ± 0.02 ° C. The chiller operation is controlled by a PID controller. The ability to set the temperature and monitor the current state from a PC is carried out via the physical RS-485 protocol, by connecting a USB cable and installing software. The possibility of manually changing the pressure at the outlet of the coolant. Emergency protection is implemented by termination of the supply voltage of the Peltier modules, sound and light signals of the "ALARM" indicator.

Specifications		
Model		**CFC-750-TE-AIC**
Cooling method		**Thermoelectric device (Thermo-module)**
Radiating method		**Forced air cooling**
Protection of air heatsink against corrosion		**Anodizing on aluminum 6 to20 microns**
Visual control		**Current and setting temperature**
Control method		**On/Off control (Hysteresis is adjustable), P, PI, PD, PID**
Control accuracy, °C		**± 0.1**
Temperature and humidity of the operating environment		**4~45 °C, 35~80% (No dew condensation)**
Setup tuning		**Keypad and via RS485**
Electrical system	**Power supply**	**Voltage range 100-130V (rated voltage 115V), 50/60 Hz Voltage range 200-240V (rated voltage 230V), 50/60 Hz**
	Overcurrent protection (A)	**15**
	Maximum current consumption (A)	**5,2 (220V)**
	Power consumption (W)	**900**
	Alarm signal	**The temperature of the coolant is out of the set range , the temperature sensor is broken , the level of the coolant in the tank drops**
	Communications	**RS485**
	Fans lifetime (at temperatures not higher than +40°C) and nominal voltage	**≥60,000 hours**
Circulating fluid system	**Circulating fluid[1]**	**Distilled water, 70% distilled water H2O + 30% ethylene glycol or ethanol, others non-corrosive coolants**
	Operating temperature range of fluid: coolant – distilled water, °C	**+2 ÷ +40**
	Operating temperature range of fluid: coolant 70% distilled water H2O + 30% ethylene glycol or ethanol, °C	**-12 ÷ +40**
	Cooling capacity at ΔT=0 for water , W [2]	**750**
	Temperature stability, °C [3]	**±0,02-0,03**
	Pump capacity	**Refer to the performance charts**
	Volume of inside liquid circuit, ml	**1800**
	Tank capacity , ml	**1200**
	Wetted materials	**Stainless steel , electroplated nickel-plated aluminum , PPS, Ceramic, PPE, POM , PC , PVC, NBR**
	Connector Type	**CPC Quick-release connector**
Dimensions height/width/depth, mm (Inches)		**580/370/390 (22.83/14.6/15.4)**
Weight [4]		**32 kg**

1 - Used Coolant used should have no components capable of forming deposits or corrosion of the fins, as well as to dissolve nickel coating; should not be exposed to freezing or boiling over the temperature range of the liquid circuit.
2– Cooling capacity is rated at ambient temperature +35°C for liquids with thermal conductivity 4.19 +/- 5%, kJ/(kg*K).
3- Circulating fluid OUT is directly connected with IN
4 - Weight can deviates from indicated within +/-5%.

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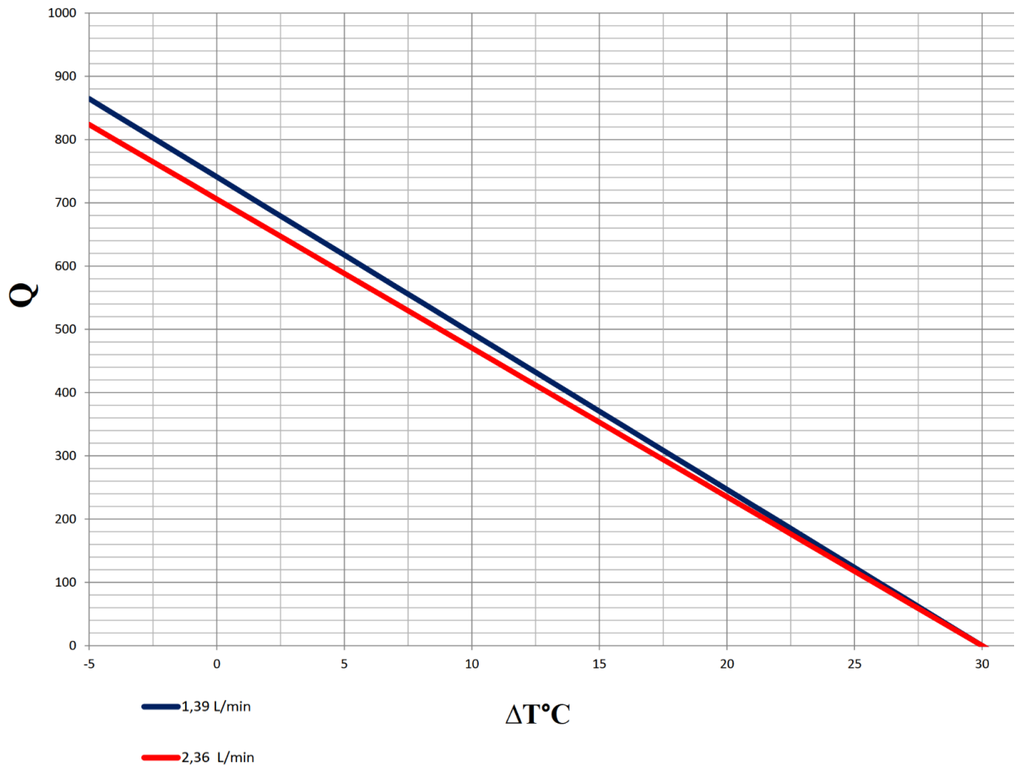
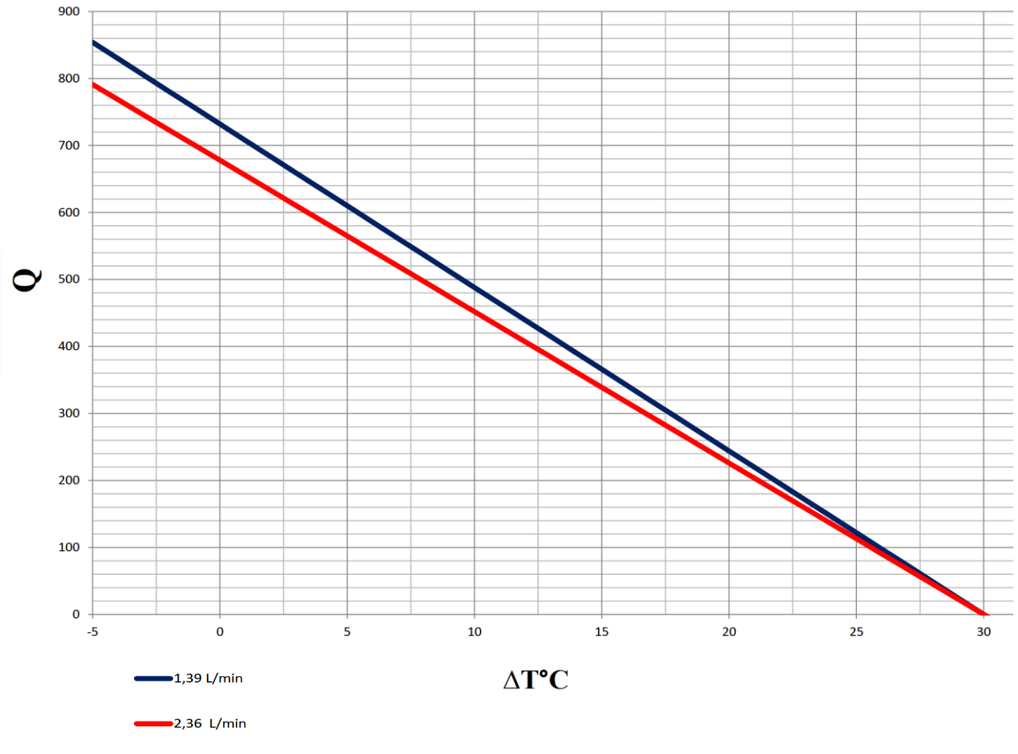
ΔT °C = T ambient air temperature - T liquid.
Q - cooling capacity,
W, ambient temperature +35° C.

Cooling capacity

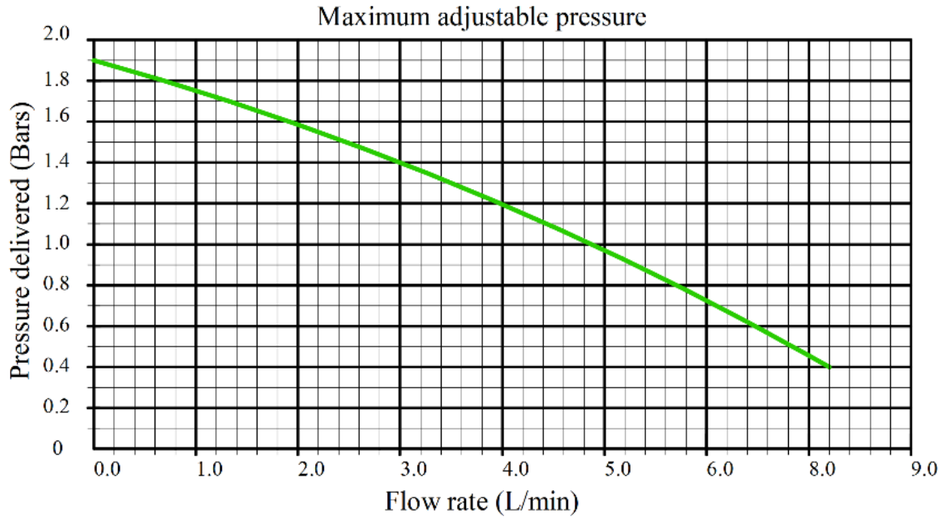
Coolant water

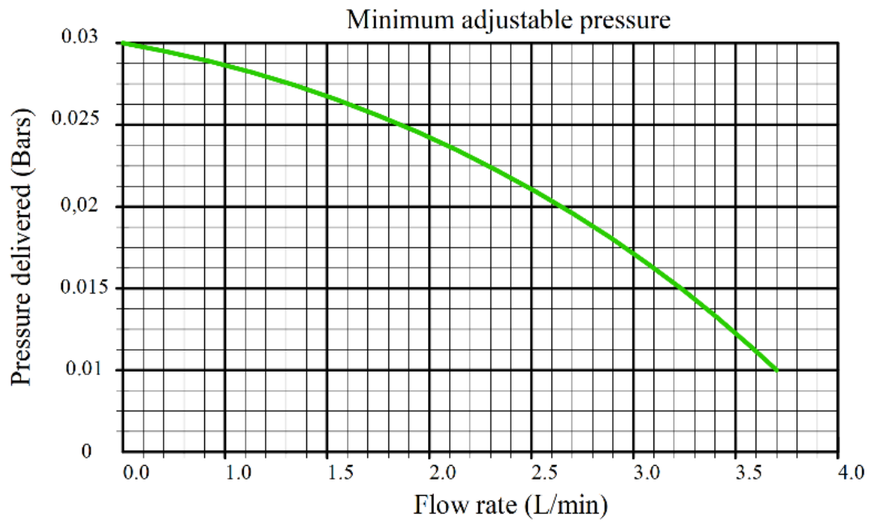


Coolant water 30% ethylene glycol

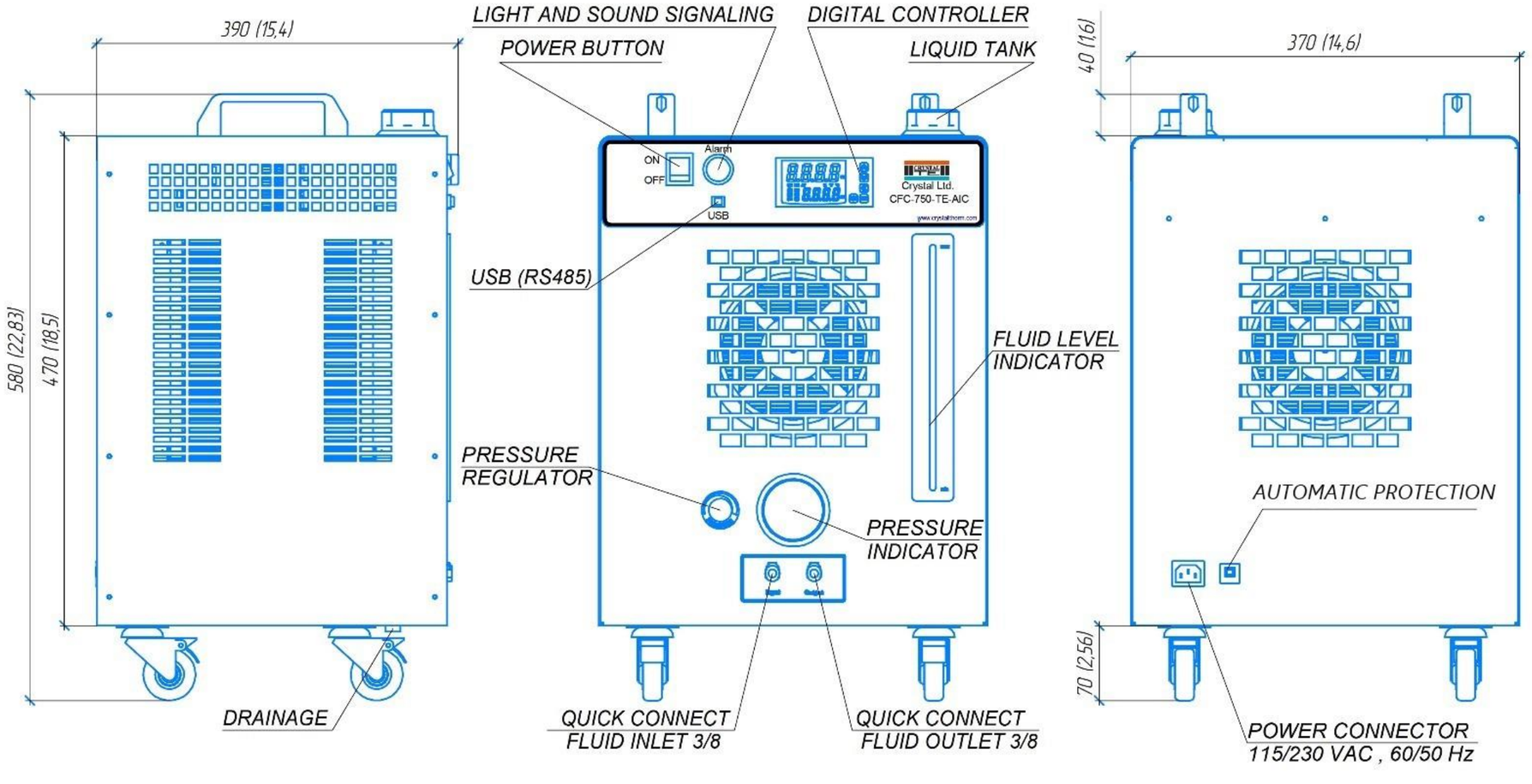


Pressure provided by the pump (Chiller outlet) coolant water





Overall dimensions



MM. (INCHES)