COOLING WATER ISOLATION SKID

Provide a Protective Barrier Between Plant Service Water and Sample Coolers

COOLING WATER ISOLATION SKID (CWIS)

Features

- Eliminate sample cooler fouling
- Isolate chemicals and dissolved and suspended particles in plant service water
- Maintain constant sample temperature

Options

- Dual pumps, manual control
- Dual pumps with automatic switch-over on loss of flow
- Dual heat exchangers allow cleaning of fouled heat exchangers without interruption of recirculating water
- Close temperature control within ±1°F (0.5°C).
- Oversized heat exchangers for high heat rejection rates or severe fouling service
- Titanium heat exchanger plates for brackish or corrosive water service

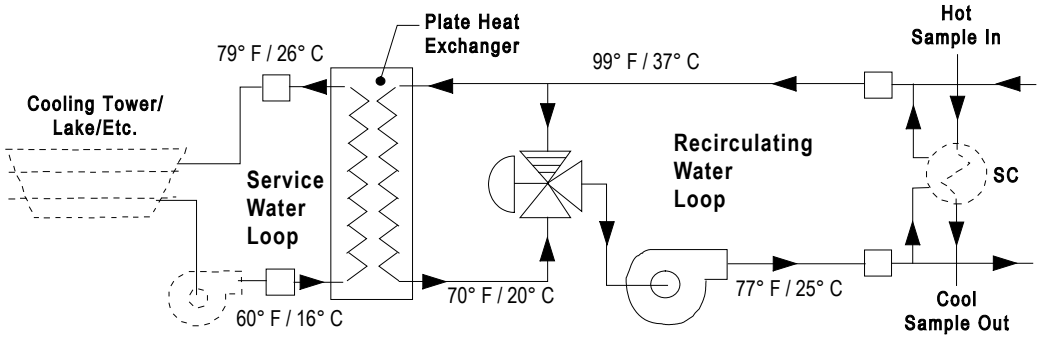
Description

Poor quality plant service water and temperature variation can cause major problems with sample cooling. Plant service water chemical purity, physical purity, pressure and temperature are of particular importance for proper sample cooling. If the water contains any hardness, exposure to high temperatures in the sample coolers can result in scaling and a loss of cooling efficiency. Chemical contaminants such as chlorides can cause stress corrosion cracking of stainless steel at elevated temperatures. Undissolved material in the water (e.g. silt, organic matter and corrosion products) can plug the sample cooler minimizing heat transfer capacity. The flow of cooling water may be insufficient due to low source pressure or excess pressure drop in the supply piping. Seasonal temperature variation of plant service water also affects sample temperature stability and analyzer readings. A Sentry Cooling Water Isolation Skid (CWIS) can solve all of these problems.

Heat from the sample cooler is removed by a loop of clean recirculating water, eliminating scaling and fouling of the sample coolers. This clean loop is cooled by the plant service water via a plate and frame heat exchanger. The plate exchanger provides a protective barrier between the plant service water and the sample coolers. The plant service water is not exposed to the high temperature of the sample cooler (preventing scaling in the plate exchanger), and if silt of organic matter fouls the plate exchanger, it can be easily cleaned in a few hours. Also, the pump provides adequate head pressure in the clean loop, which ensures cooling water supply to the sample coolers.

The temperature of the clean recirculating water loop is held constant. A diverter valve allows some of the warm flow of the clean loop to bypass the plate exchanger and later mix with the cooled flow to maintain an adjustable preset temperature. Constant clean loop temperature greatly enhances analyzer accuracy by eliminating excursions of the sample temperature. This also allows flow on the plant service water loop to be maintained at a high level to minimize fouling.

COOLING WATER ISOLATION SKID SCHEMATIC DIAGRAM



SPECIFICATIONS

Heat Exchanger
Plate and frame with 316 stainless steel plates. Isolation valves are standard on recirculating side of the heat exchanger to allow cleaning of the heat exchanger with minimum loss of recirculating water and to minimize air ingress into the recirculating system. Vent and drain fittings are provided for both sides of the heat exchanger.

Recirculating Water Pump
Centrifugal pump with close-coupled 3 phase TEFC motor. Pumps are provided with inlet and outlet isolation valves and unions/flanges to facilitate pump maintenance.

Expansion Tank
Bladder type tank equipped with relief valve.

Temperature Control
Standard units have self-contained 3-way mixing/ regulating valve capable of control within ±4°F (2°C).

Make-Up Water Connection
Integral pressure regulating valve for inlet pressures up to 125 psig (8.6 barg).

Electrical
480 volt, 3-phase, 60 Hz input power.
NEMA 12 enclosure with disconnect.
Indicating light for 'Power On', 'Pump On', 'Pump Off' and 'Loss of Flow'.

Instrumentation
Discharge pressure gauge and recirculating water outlet temperature indication.

Model Number	Recirculating Flow GPM (LPM)[1]	Heat Rejection BTU/HR (KW)[2]	Power KVA[3]	Connection Sizes		Make-up Water
				Recirculating Water	Service Water	
CWIS-35	35 (132)	500,000 (146)	1.3	1 1/2" FNPT	1 1/2" FNPT	1/2" FNPT
CWIS-80	80 (303)	1,000,000 (292)	3.6	2" FNPT	2" FNPT	1/2" FNPT
CWIS-140	140 (530)	1,800,000 (527)	5.8	2 1/2" FNPT	3" 150# FLG	1/2" FNPT

[1] Recirculating flow rates are based upon an external pressure drop of 20 psig (1.4 barg).
[2] Heat rejection capacities based on service water flow of 150% of the recirculating flow and 10°F temperature approach.
[3] The KVA rating is for a single pump.

⚠WARNING

It is solely the responsibility of the end-user, through its own analysis and testing, to select products and materials suitable for their specific application requirements, ensure they are properly installed, safely applied, properly maintained, and limit their use to their intended purpose. Improper selection, installation, or use may result in personal injury or property damage.

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