ADIABATIC
C O O L E R

- Process Cooling : Water / Oil / Gas / Chemicals / Glycol / Brine
- Cooling Range : Cooling between Air Dry bulb & Wet bulb temeprature
- Mode of Operation : Operates on Dry and Wet mode automatically
- Water Saving : up to 80%
- Energy Saving : up to 40%

FINTHERM
YOUR HEAT EXCHANGE PARTNER

www.fintherm.in

FINTHERM

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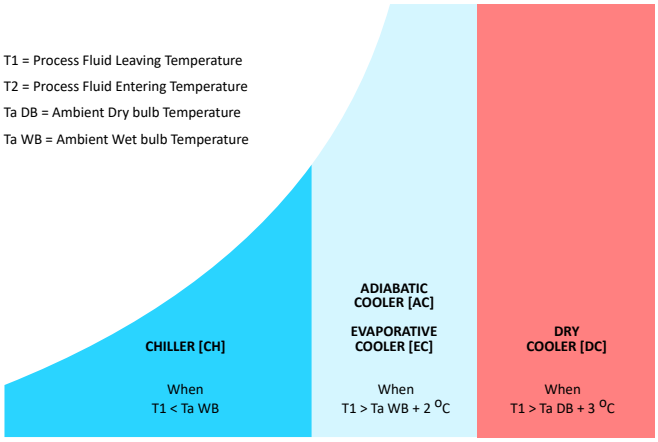
FINTHERM is committed to manufacture world class product with state of the art technology. Our strengths and expertise are gained from +30 years of industry experience to deliver cutting-edge heat exchanger solutions tailored to your specific needs. FINTHERM brings together the best practices, resources, and innovation to provide a comprehensive suite of products. Our vision is to lead in heat exchanger manufacturing, setting the standards for innovation, efficiency, and sustainability in the industry. We strive to enhance the quality of life by optimizing heat transfer solutions that power a cleaner, more sustainable world. Our mission is to exceed customer expectations by delivering top-notch heat exchangers that optimize energy efficiency, reduce operational costs, and contribute to a sustainable future.

FUNDAMENTS OF COOLING of air and process fluid / gas is shown in the diagram below. There are 3 prime points which are needed to select an appropriate system. Every location is different due to its climatic conditions. To cool the process fluid / gas, design temperature Dry & Wet bulb of the location is selected. Based on the criterias given below, the right selestion of equipment is made.

Criteria 1 : If the process fluid / gas is to be cooled above design ambient Dry bulb temperature, then Dry Cooler is sufficient

Criteria 2 : If the process fluid / gas is to be cooled below design ambient Dry bulb temperature and above design ambient Wet bul temperature, then Adiabatic cooler is required which shall operate at both Dry and Wet mode automatically.

Criteria 3 : If the process fluid / gas is to be cooled below design ambient Wet bulb temperature, then a combination of Adiabatic along with Chiller is used.

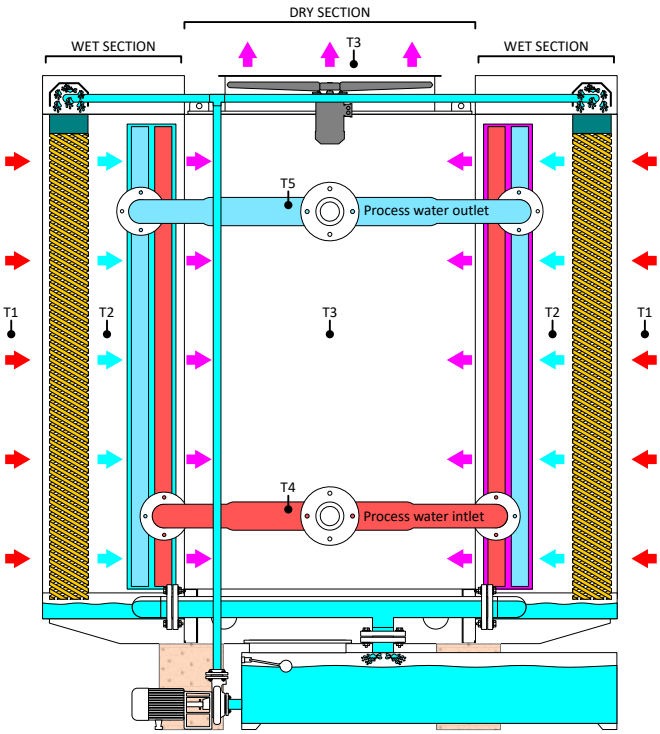


HOW IT WORKS ? FINTHERM Adiabatic cooler consists of Fin tube Coils (heat exhcanger) on both sides of the cooler to make it compact and less space consuming equipment. The process fluid flows inside the coils and to the process via pump and connected pipe line. The process fluid / gas remains in a closed circuit which helps in keeping away corrosion & scaling. In between the coils in the dry section, there are fans that draw fresh air from the coil forming an induced draft. Before the fresh air enters the coil, the air passed through wet Celdek pad (T1) that reduces the air temperature (T2) and increases the humidity in the air. This air is carefully designed at FINTHERM to futher design the coils for optimum performance.

FINTHERM Adiabatic cooler smartly operate by continiously sensing the process temperature. If the air temperature after passing through wet celdek (T2) reaches coil design temperature or below (after sunset) then the CONTROL LOGIC shuts down spray water and the coolers runs under completely dry mode saving 100% water. Fan are sequentially controlled for energy saving.

Water saving up to 80%

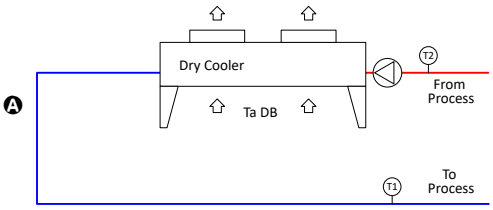
Energy saving up to 40%



FLOW DIAGRAMS For proper methedology of process cooling, below ginve are few diagrams on selections of right equipment.

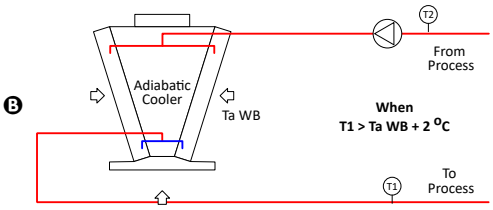
DRY COOLER
up to 100% water saving

When
T1 > Ta DB + 3 °C



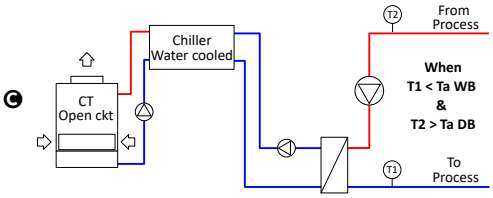
ADIABATIC COOLER
up to 80% water saving

When
T1 > Ta WB + 2 °C



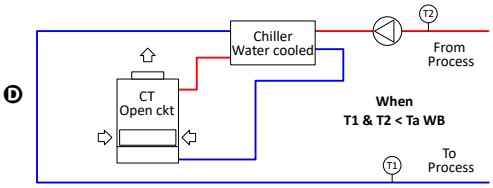
CHILLER + PHE
with cooling tower

When
T1 < Ta WB
&
T2 > Ta DB



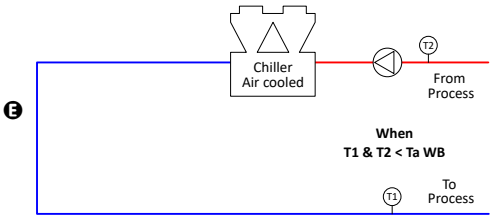
CHILLER
with cooling tower

When
T1 & T2 < Ta WB
&
Process ΔT < 15 °C



CHILLER
air cooled

When
T1 & T2 < Ta WB
&
Process ΔT < 15 °C



COMPARISON	A	B	C	D	E
Water consumption	Nil	Low	Medium	Medium	Nil
Power consumotion	Low	Low	Medium	Medium	High
Maintenance	Low	Low	High	Medium	High
Process circuit	Closed	Closed	Closed	Closed	Closed
Descaling chemicals	Not required	Not required	for CT	for CT	Not required

MOC [Material of Construction]

Fins	:	Aluminium, $AlMg_{2.5}$, $AlMg_{3.0}$, Copper
Tubes	:	Copper, SS 304L, SS 316L [Fusion welded / Seamless, Annealed]
Fin coating	:	Blue fin, HERESITE USA coating [for harsh enviornment]
Dry section casing	:	Galvanize steel, Aluminium, SS 304
Wet section casing	:	SS 304
CelDek	:	Cellulose paper
Motors	:	IE 2/3/4, IP55 ~ 65, Flameproof [ABB / Siemens / BBL / Crompton]
Spray pump	:	Crompton, KSB, Kirloskar
Fan material	:	PA, PAG, PACAS [anti-static], Silumin alloy hub [WINGFAN / MULTIWING]

Standards / CAD & CAM

AHRI · UNILAB HEAT TRANSFER SOFTWARE · SOLIDWORKS

DRY COOLER V TYPE

Power Generation / Process Cooling

DRY COOLER H TYPE

Power Generation / Process Cooling

EVAPORATIVE COOLER & CONDENSER

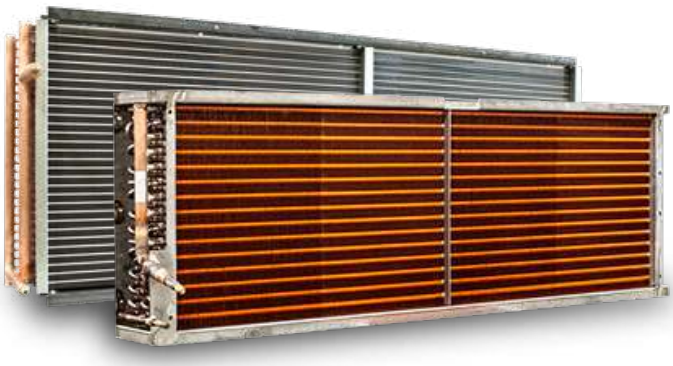
R717 / R22 / R404a / R407c / R134a / R410a

WATER / GLYCOL

AIR COOLING UNIT

R717 / R22 / R404a / R407c / R134a

R410a / WATER / GLYCOL



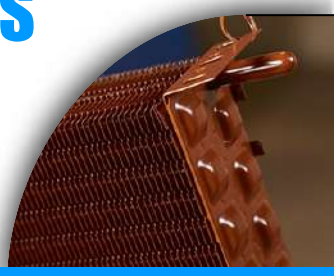
FIN TUBE COILS

Cooling & Dehumidifying

Sensible Heating & Cooling

Condenser

HERESITE PROTECTIVE COATINGS, LLC



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