For all types of air-cooled condensers and cooling equipment

SMART COOLING

NEW GENERATION CHILDER BOOSTING
ADIABATIC PRE-COOLING SYSTEM

Reduce chiller electricity consumption by up to 37%

Increase chiller cooling capacity by up to 41%

Total condenser protection 100%

www.smartcooling.us
REDUCE ELECTRICITY CONSUMPTION BY UP TO 37%

INCREASE COOLING CAPACITY BY UP TO 41%

PROTECT CONDENSERS AND COMPRESSORS 100%

Smart Cooling™ stands for performance, safety and technology. Our chiller boosting new generation adiabatic pre-cooling system intelligently merges with your equipment to increase efficiency, reduce operational costs and protect it from environmental hazards such as corrosion and limescale. Smart Cooling™ keeps your condensers safer and cleaner for longer than any other adiabatic device in the market. We ensure the quality and reliability of each Smart Cooling™ component to boost the efficiency of your chiller.”
WHAT IS SMART COOLING™?

Smart Cooling™ reduces chiller electricity consumption by up to 37%, increases the coefficient of cooling performance by up condensers and heat exchangers. The new generation adiabatic Smart Cooling™ pre-cooling system suits all models of air-cooled chillers, dry-cooling condensers, heat exchangers, rooftop units and refrigeration units.

INTELLIGENT ADIABATIC PRE-COOLING SYSTEM

- **Smart Cooling™** provides condenser pre-cooling, cools down intake air by using new generation technologies.
- **Smart Cooling™** reduces gas pressure within the chiller circuit, minimizes compressor load, increases COP and reduces electricity consumption.
- **Smart Cooling™** protects condensers from rust, dust, direct sunlight and calcium and mineral deposit (limescale).
- Our new generation intelligent controller analyses chiller load, gas pressure, air temperature, air humidity and fan algorithm.
- Four-step water treatment: No mineral deposit on condensers and pipes.
- **Smart Cooling™** is a modular system and can be easily installed in all chiller models and manufacturers.
- Unique technology ensures minimum water consumption and maximum evaporation efficiency.

Chiller + **Smart Cooling™** = increased efficiency
SMART COOLING™ TECHNOLOGY

Chiller booster Smart Cooling™ combines an adiabatic evaporative pre-cooling process and condenser protection with mechanical air filtration. The intelligent Smart Cooling™ adiabatic system is mounted externally in front of the condensers of the cooling equipment. Smart Cooling™ initiates the adiabatic process even before the mechanical cooling kicks in and the equipment receives a temperature-reducing fine mist of processed water that reduces the temperature of condensation within the cooling circuit.

HOW DOES IT WORK?

“Higher chiller efficiency with lower electricity consumption. The new generation in adiabatic pre-cooling”
Chiller protection is one of the greatest advantages of *Smart Cooling™*.  

**Smart Cooling™** ensures **full condenser protection** from calcium and mineral deposit formation (limescale), rust and direct sunlight.

**Smart Cooling™** protects condensers and compressors from overheating.

**Smart Cooling™** allows the cooling equipment to operate in extreme environments, where ambient air temperatures can reach up to 55°C.

**Smart Cooling™** provides the highest efficiency and reduces load on compressors.

**Smart Cooling™** ensures the **fastest investment return** in the industry.
The membrane (pre-filter) protects the condenser from calcium and mineral (limescale) deposits. The membrane prevents the water mist from coming into direct contact with the condenser. The self-cleaning membrane captures water mist, direct sunlight and dirt. The membrane’s special cell material does not create additional resistance to airflow into the condenser.

Panels with misting nozzles are mounted externally in front of the condenser. The micro nozzles create a mist wall sprayed in front of the condenser. When water comes into contact with hot air it evaporates instantly (or promptly after settling on the membrane). Water evaporation lowers the temperature of the intake air flowing into the condenser. The cooled air is then fed into the condenser with the cooling fan.

The high-pressure chiller booster pro 10-UV unit provides 70-140 bar pressure to the Smart Cooling™ system. The pump station houses a specially developed high-pressure pump, valves, ultraviolet lamps and automated operations electronics. Ultraviolet lamps purify and sterilize the water to safeguard against bacteria such as harmful *Legionella*. 
This Smart Cooling™ component provides four stages of water purification: calcium carbonate and mineral elimination; protection against algae and bacteria including Legionella; fine water treatment of up to five microns. The water purification module ensures pipes and other components are protected from limescale formation and deposit.

The water recirculation module ensures 100% of water usage and recirculation. The recirculation unit accumulates nonevaporated water, re-filters it and returns the water back into the adiabatic system.

PRO 1’s seven settings of operation enables the system to use water efficiently in varied air and chiller load parameters. The software adapts operating modes to all climatic zones. PRO 1 analyzes chiller load, external air temperature and humidity levels. PRO 1 can process data and activate the adiabatic system to maximize efficiency. The processor controls the operation of the adiabatic system, such as the precise amount of water needed at each stage.
Protecting the condensers from deposits, dirt and direct sunlight is essential for your cooling system. **Smart Cooling™** protective membranes safeguard your condensers with great efficacy. The cleaner the condenser of your cooling equipment the better heat exchange and removal processes take place. **Smart Cooling™** protective membranes ensure greater longevity and higher efficiency, while the adiabatic panels guarantee air pre-cooling and prevent your equipment from overheating. **Smart Cooling™** means unmatched levels of protection offered by no other adiabatic.

**NO CALCIUM AND MINERAL DEPOSIT (LIMESCALE) BUILD-UP IN THE CONDENSER**

Water is treated with uniquely developed biochemicals before entering the intelligent adiabatic evaporative **Smart Cooling™** pre-cooling system changing the structure of calcium carbonate molecules and preventing them from adhering to surfaces and depositing as harmful limescale.

**WATER MIST FREE OF LEGIONELLA**

**Smart Cooling™** is equipped with ultraviolet sterilizers that eliminate all bacteria in the water passing through the system, including *Legionella*.

**100% CONDENSER PROTECTION**

**FAN PRESSURE DROP OF ONLY 1% TO 3%**

**Smart Cooling™** does not reduce airflow and does not increase resistance. Extensive measurement shows fan pressure drops of less than 3%. With cleaner heat-emission radiators **Smart Cooling™** provides low exit temperatures and reduced pressure in the whole system. The frequency of maintenance service drops considerably and constant emergency calls become a thing of the past. With **Smart Cooling™**, your cooling equipment will cost less to run and maintain in addition to the boost in safety and durability.
In addition to air-cooling, **Smart Cooling™** decreases the basic pressure within the compressor. This increases the service life of the compressor. **Smart Cooling™** considerably curtails damaging high discharge pressure and cooling cycle temperatures so the mechanical stress of the system is remarkably lower. Your cooling equipment will require less maintenance and operate more safely.

**Smart Cooling™** comes as an assembly kit and can be installed on both new and running cooling equipment of any make and model. **Smart Cooling™** is mounted externally in front of the condensers of the cooling equipment without any impact or alterations to the interior of the equipment and no effect on manufacturers’ warranties.

**HIGHER COOLING EFFICIENCY**
**lower electricity consumption**

**EASY TO SET-UP**
**MODULAR SYSTEM**

**INCREASED EQUIPMENT**
**SERVICE LIFE**
“Increases chiller performance and reduces electricity consumption”.

Using a precision simulation program, we have accurately determined the expected results for every chiller model.

Thanks to Smart Cooling™ high-precision calculations and hybrid cooling technology, chillers provide the highest Energy Efficiency Ratio and Coefficient of Performance ratings, significantly reducing electricity consumption and costs.

The Smart Cooling™ kit suits chiller retrofit and new chillers. Each kit fits all models of air-cooled chillers and condensers.
INTELLIGENT • PROVEN • SAFE
The adiabatic Smart Cooling™ system can be installed on all condensers of all major manufacturers.