**SYSTEM INFORMATION**

**WASS** is a special kit designed to enhance the efficiency of air-cooled electric chillers and is suitable for industrial and non-industrial cooling system located in hot-summer regions, such as Southern Europe and the Middle East. Depending on the environmental characteristics, **WASS** may reduce chiller ELECTRICAL energy consumption from 20-40% or increase chiller COOLING capacity from 20-30% providing 100% PROTECTION for the condensers.

**FUNCTION**

An atomising system on board of the unit creates a very thin solution-water particle mist which by adiabatic evaporating brings the suction air to a homogeneous and almost complete adiabatic saturation. The effect is a reduction of the suction air temperature (respect to the external ambient air) and therefore an increased efficiency of the heat exchanger.

**OPERATING PRINCIPLES**

The air conditioning and cooling units are usually manufactured to provide a calculated efficiency for the facilities where they are installed. The cooling power of each unit is usually dimensioned based on the specific temperature of the external air entering within the system. The higher inlet air temperature is, the higher the power consumption is for reaching the corresponding cooling capacity needed.

The temperature of external air passing through the panel is reduced because warm air is cooled by a solution-water mist created before entering in the cooling system. Thus the inlet air is invested by a thin mist of solution-water droplets generated by special spray nozzles: therefore the air is humidified and pre-cooled with values that depend on the specific operating conditions of the system.
An average decrease of the air temperature by 1°C can improve the efficiency of air cooled chiller between 2% to 3% for each degree. Thus, the systems is consuming 2% to 3% less electrical energy to achieve the same chilled water set-point temperature.

Thanks to its extremely efficient and reliable approach, WASS system can decrease inlet temperature by 10 to max 20°C.

WASS MAIN ADVANTAGES

- **WASS** has very low operation expenses and it does need an easy maintenance;
- **WASS** protects condensers from rust, calcium and mineral deposit, dust and direct sun light;
- **WASS** provides water filtering: special construction to avoid mineral deposit risk on condensers and pipe;
- **WASS** is easy to install around any air-cooled chiller types and brands;
- **WASS** has a small footprint installation - No large space is required;
- **WASS** provides a unique technology: Minimum water consumption with higher evaporation efficiency;
- **WASS** minimizes compressor load, increases COP, and reduces energy consumption;
- **WASS** supports the efficiency of the air-cooled chiller, so the lifetime of the same cooling unit is extended;
- **WASS** reduce CO$_2$ emissions, as it decreases electrical consumption of the compressor.

SYSTEM COMPONENTS

1. Membrane panel
2. Pump station
3. High pressure nozzles panel
4. Water filtering unit
5. Control unit & monitoring system

Based on our experience, WASS can be installed with all relevant brands of chillers.
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