

EFFECTIVE DEHUMIDIFICATION

REMAK

It does not matter whether you need to control humidity in swimming-pool halls, baths, stores, industrial production plants, water plants or thawing plants, our dehumidification units will work efficiently and reliably, and prolong the service life of the buildings and machines while maintaining a healthy internal environment.

Effective dehumidification can be ensured by two physically different methods which can be combined in practice. Condensation dehumidification is based on the principle of cooling the air below the dew point temperature and thus making the air humidity condensate. These systems are suitable for application in plants requiring output specific humidity 5.0 g/kg or higher (the dew point temperature is higher than +3.5 °C). In these boundary conditions, condensation dehumidification is reliable, effective and very simple.

When dehumidification for lower specific humidity and lower dew point temperatures is required, condensation dehumidification can still be used but continuous operation will not be possible due to interruptions needed for ice melting from the heat-exchanging surfaces and efficiency will also be lower. Therefore, it is advisable to use other types of dehumidification, so-called sorption systems, in plants with low temperatures. These systems are able to achieve an extremely low specific humidity using the so-called physical method (absorption). However, these devices require continuous regeneration of the sorption layer with overheated air.

APPLICATION OF REMAK CONDENSATION DEHUMIDIFICATION SYSTEMS

Dehumidification of technology and manufacturing processes

These are usually circulation systems, possibly with a portion of fresh air, equipped with compressor circuits and often supplemented with external condensers and liquid coolers. The specific device set-up mainly depends on the number of controlled variables:

- Accurate humidity control
- Accurate humidity and temperature control within a limited range
- Accurate humidity and temperature control without limitation



Dehumidification of wet plants (swimming-pool halls, etc.)

The technical solution and equipment of dehumidification units is based on an operating cost analysis and specific customer requirements. As standard, the units are offered in three levels of optional equipment depending on the ZTT solution:

- Non-mechanical heat recovery using a plate heat exchanger (ventilation units)
- Active mechanical heat recovery with dehumidification using a heat pump (installation of a heat exchanger for pool water heating is recommended)
- Two-stage heat recovery system with dehumidification using a plate heat exchanger and a heat pump (It is advisable to install a heat exchanger for swimming-pool water heating.)



REMAK SWIMMING-POOL UNITS REPRESENT TOP-CLASS SWIMMING-POOL AIR-HANDLING SYSTEMS WITH AN AUTONOMOUS M&C SYSTEM FOR THE VENTILATION, HEATING AND DEHUMIDIFICATION OF SWIMMING-POOL HALLS WITH A WATER AREA FROM 25 TO 700 M².

APPLICATION OF REMAK CONDENSATION DEHUMIDIFICATION SYSTEMS

FEATURES

The swimming-pool unit controls the humidity and temperature inside the swimming-pool hall, ensures the exchange of air containing dangerous chloramines with fresh air, blows the building structures with hot and dry air to avoid moisture condensation and cold radiation while partly covering building heat losses and gains and warming the swimming-pool water. This is all done automatically at minimum operating costs while providing a long service life for all engineering components resistant to aggressive air.

DESIGN

A two-stage heat recovery system with dehumidification using an efficient plate heat exchanger and a heat pump is the heart of the swimming-pool air-handling unit. The unit is equipped with a heat exchanger for swimming-pool water heating. All the heat-exchanging surfaces are provided with an epoxy finish, the unit's internal casing and internal assemblies are hot-dip galvanised + powder coated, and condensate drainage trays are made of special stainless steel. The frameless casing features L1 air leakage class.

DESCRIPTION OF CONTROL

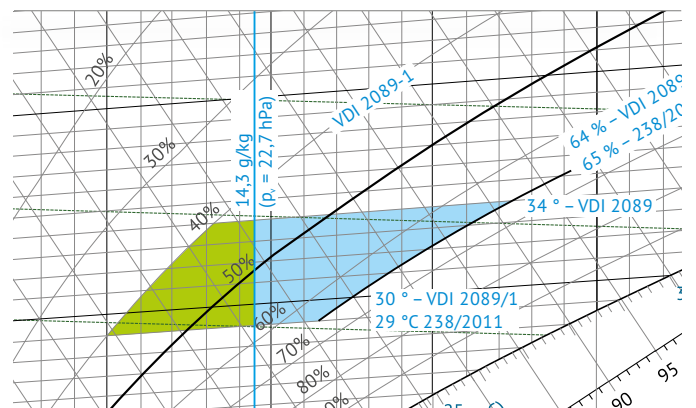
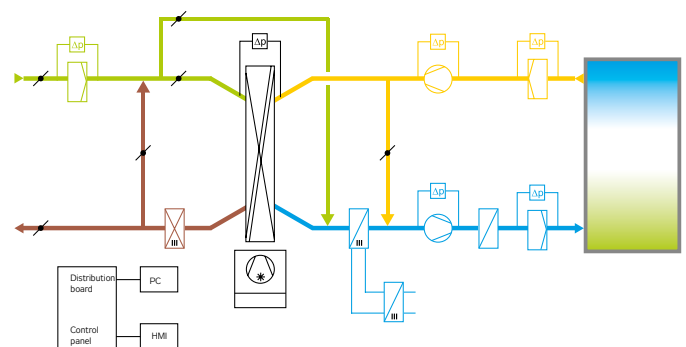
The unit works with a variable air flow rate depending on the occupancy of the swimming-pool and levels of internal and external air humidity. The heat pump works with maximum performance factor in all operating modes. The control unit is equipped with a web card enabling remote supervision and administration by the manufacturer..

BASIC TECHNICAL PARAMETERS

| | | |
|--|-------------------|--------|
| Rated air-flow rate | m ³ /h | 15 000 |
| Dehumidification capacity in accordance with VDI 2089 | kg/h | 90 |
| Plate heat exchanger efficiency | % | 70 |
| COP | - | 6,0 |
| Coolant | - | R407C |
| Filtration | - | M5+F7 |



Swimming pool (Swiss) – dehumidification, ventilation and heating of the swimming-pool hall



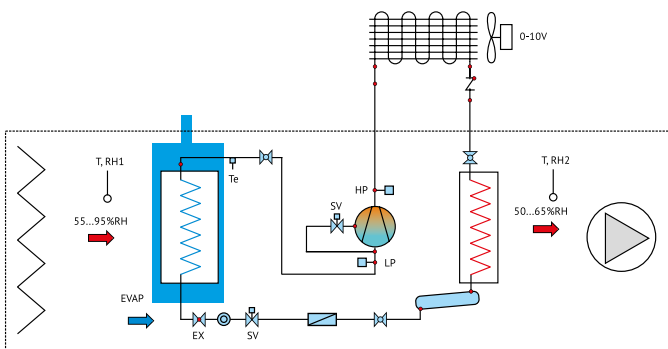
APPLICATION OF REMAK CONDENSATION DEHUMIDIFICATION SYSTEMS



Kerosene and diesel fuel storage - accurate humidity and temperature control within a limited range

FEATURES

Effective humidity control inside the storage area without overheating by ingress of condenser heat, i.e. humidity is controlled while the output air temperature is limited.



DESIGN

The unit includes one, respectively two highly efficient Digital Scroll compressors supplied by Copeland, a renowned compressor manufacturer, two in series-connected air condensers (one is situated outside the unit), an air evaporator and an injection valve which ensures maximum efficiency of the evaporator.

BASIC TECHNICAL PARAMETERS

| | | |
|--|-------------------|---------------|
| Rated air-flow rate | m ³ /h | 10 800 |
| Dehumidification capacity in accordance with VDI 2089 | kg/h | See the graph |
| Coolant | - | R407C |

DESCRIPTION OF CONTROL

The unit works with a constant air flow rate so that the desired air-flow pattern (mixing) inside the building is ensured. Dehumidification capacity and output air temperature control is ensured by active elements – a digital compressor and an axial flow fan working with secondary air.

The unit is designed so that the evaporating pressure cannot drop below the level which would cause ice build-up on the heat-exchanging surface, thus continuous operation is ensured without the need for defrosting.

Communication with the master system is limited to the logic status signals „Run“ and „Failure“.

