



AERON



PC-02
Description of the Plant





THE AIR-CONDITION PLANT

The ventilation and air-condition plant consists of one or several Air-Handling-Units (AHU), typically named AC-1, AC-2, AC-3 etc.

The Air-Handling Units in general, consists of an air inlet section with a damper for mixing fresh air and return air, filter section, preheating section, humidification section, cooling section, fan section and air outlet section.

The Inlet section is constructed as a suction chamber connected with both fresh air inlet and return air ducts. A mixing damper is used in order to obtain the correct mixture of fresh air and return air.

The filter sections are equipped with bag-filters in correct size, considering filter area and airflow. Different filter class can be provided.

The preheating section is equipped with a heating coil capable of preheating the air from outside winter temperature to inside winter temperature, all temperatures according to design conditions - typically from -20°C to $+22^{\circ}\text{C}$. The preheating coil is controlled by a temperature sensor and regulator. The system is designed to keep the preset temperature constant.

The setting of the preheating temperature is done by setting the set-point at the regulator in the control cabinet. During winter season, when humidifying, steam from a humidifier unit are served into the AHU through a steam pipe. The humidifier is controlled by a hygostat placed either in a selected reference room, or in a return air duct.

The cooling section consists of a cooling coil for direct expansion or for chilled-water.

The cooling coil for direct expansion is designed for a specific refrigerant, according to design conditions and class notation – Environmental requirements.

The cooling coil for chilled water is designed for typically water temperature at $+6/12^{\circ}\text{C}$ (inlet/outlet). The cooling coil is controlled by a temperature sensor, a regulator and a 3-way valve.

A freezing sensor is mounted in the cooling-coil where risk of freezing can occur.

When risk of freezing, the fan will be stopped by means of a freezing-thermostat mounted inside the starter cabinet.

DESCRIPTION OF THE PLANT, IN GENERAL



The fan section consists of a centrifugal fan, normally driven by a 1-speed electric motor. The electrical motor can be provided for both 440V and 690V power supply.

The motor-speed can be controlled by a pressure controlled frequency converter. The set point for the converter will be fixed during commissioning.

Set point for the temperature regulators is typically +17°C. This set point will be fixed during commissioning.



PRESSURE CHAMBER / DISTRIBUTION SECTION

The pressure chamber is a sound insulated section at the end or at the top of the unit. In this section there are a number of spiro spigots for connecting all the supply pipes that are spread throughout accommodation, supplying the correct amount of treated air - with the correct condition - to each cabin, room and deck.



OTHER SUPPLY AND EXHAUST FANS

There are installed several supply and exhaust fans in accommodation. These are serving different rooms, all according to owners/customer requirements. These fans are normally manually controlled from the main starter cabinet, but can also be locally or automatically controlled. The fans can be provided for 230V, 440V and 690V power supply.

These fans are made for use in marine environment, and can also be provided in Ex-execution.



DEFROSTER SYSTEM

To prevent steamy windows in the wheelhouse there can be installed an Aeron defroster system.

The principal is to blow reheated air onto the window. This is done by means of a heating coil, spiro pipe system and defroster nozzles.

This system is available in several types and executions. The air can be delivered by a separate fan, or diverted from the air handling unit serving the wheelhouse. The heating coil can be delivered for either hot water or electrical heating.

The defroster unit is normally controlled from a remote panel in the wheelhouse. Both airflow and temperature can be adjusted. The temperature on the defroster air is typically +42°C.

The defroster system is also used in passenger area onboard ferries.

