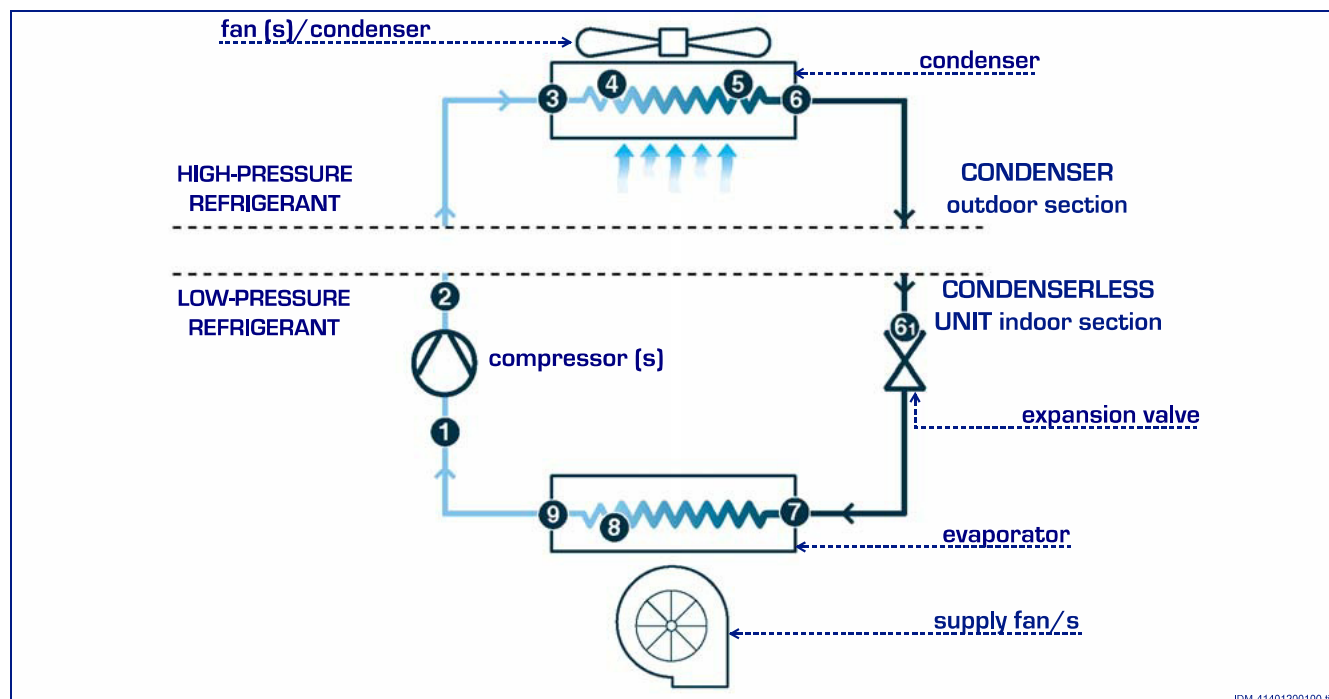


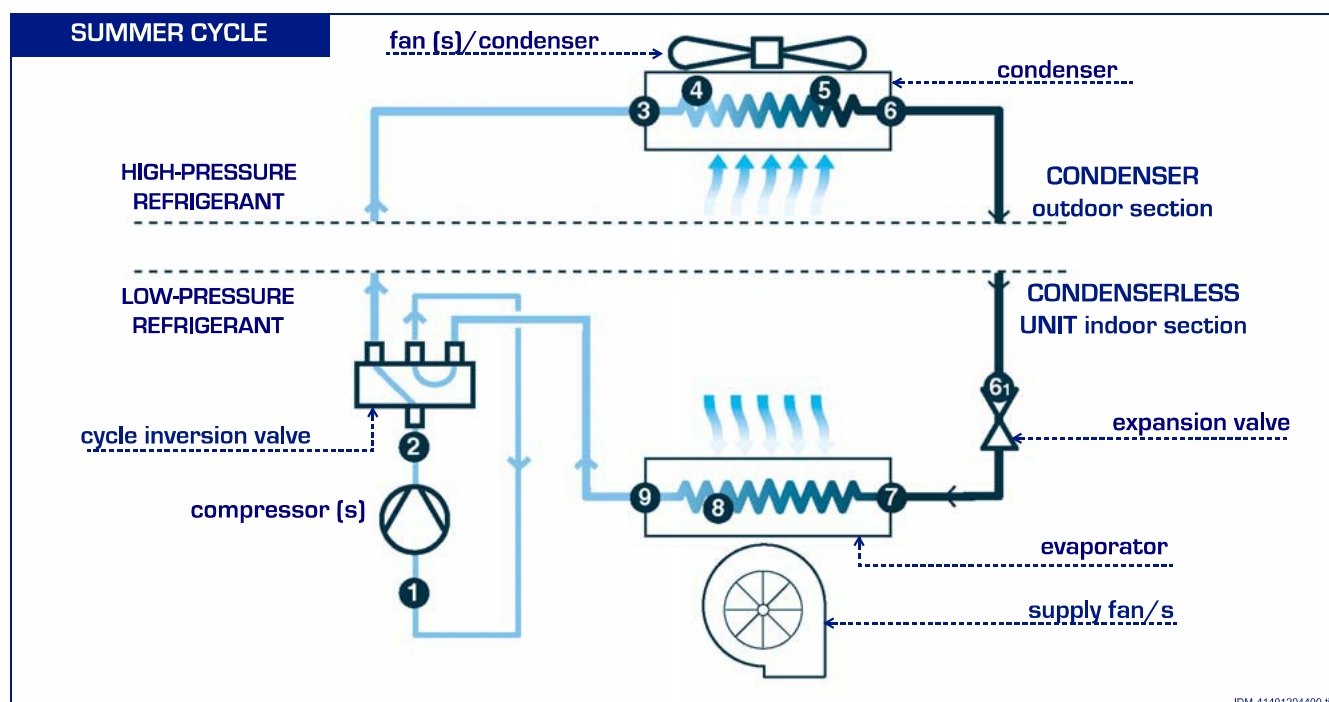
## DX Cooling circuit diagram



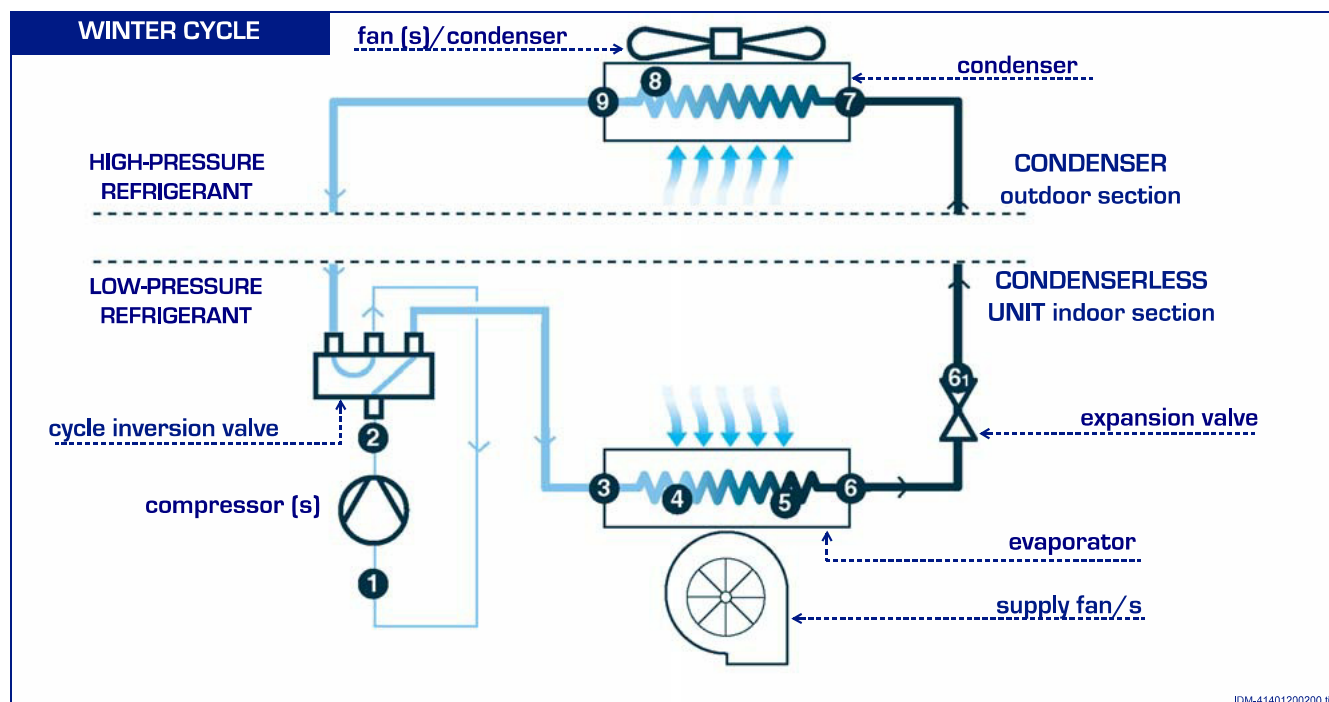
- from point 8 to point 4 the refrigerant is in the vapour phase
- from point 4 to point 5 the refrigerant is reduced from its vapour phase to its liquid phase
- from point 5 to point 7 the refrigerant is in the liquid phase
- from point 7 to point 8 the refrigerant is reduced from its liquid phase to its vapour phase

The cycle is inverted in DX.P heat pump version to allow the machine air heating.

## DX.P. Cooling circuit diagram



- from point 8 to point 4 the refrigerant is in the vapour phase
- from point 4 to point 5 the refrigerant is reduced from its vapour phase to its liquid phase
- from point 5 to point 7 the refrigerant is in the liquid phase
- from point 7 to point 8 the refrigerant is reduced from its liquid phase to its vapour phase



- from point 8 to point 4 the refrigerant is in the vapour phase
- from point 4 to point 5 the refrigerant is reduced from its vapour phase to its liquid phase
- from point 5 to point 7 the refrigerant is in the liquid phase
- from point 7 to point 8 the refrigerant is reduced from its liquid phase to its vapour phase

### Direct expansion water cooled machine (built-in water cooled condenser).

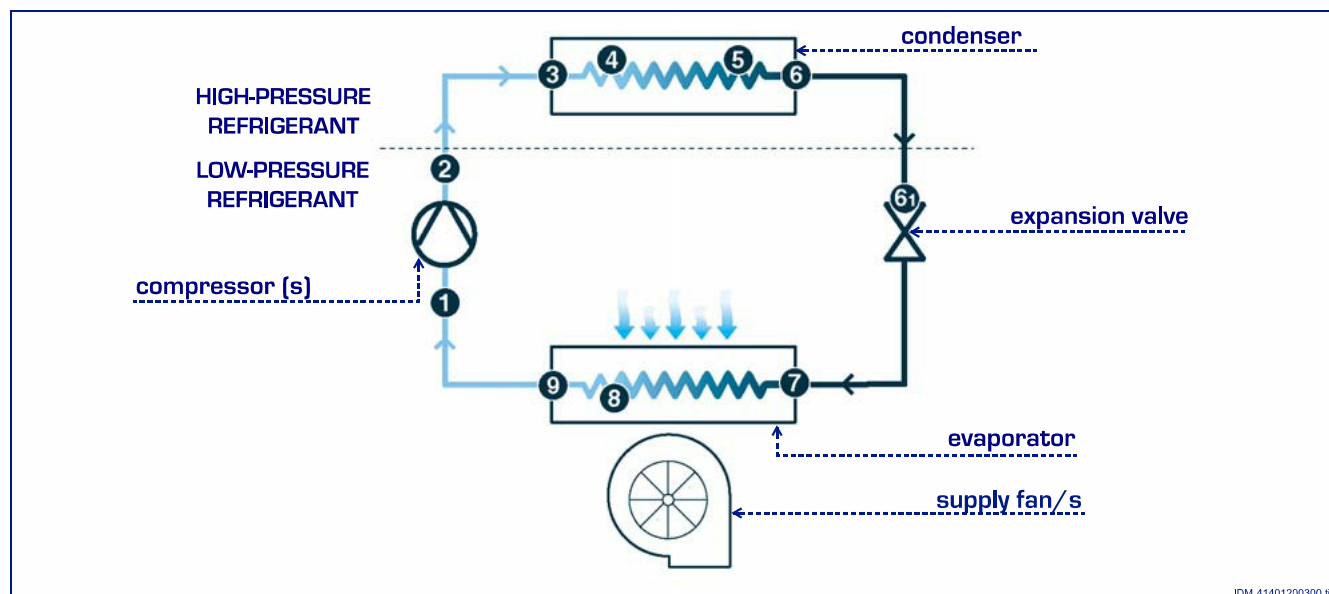
The machines are basically made up of a heat exchange section and one or more compressors for refrigerant, with the relevant water condensing sections (DW – DX.P versions). They work cooling and dehumidifying the air of the room to be conditioned. The room air is conveyed through the evaporating coil by the supply fan(s).

The cooling effect is obtained through a vapour- compression thermodynamic cycle with compressor(s).

The heat, subtracted in the evaporating coil from the air to be cooled, is transferred to the water cooled condenser and given by this to the water.

An expansion valve controls the refrigerant flow.

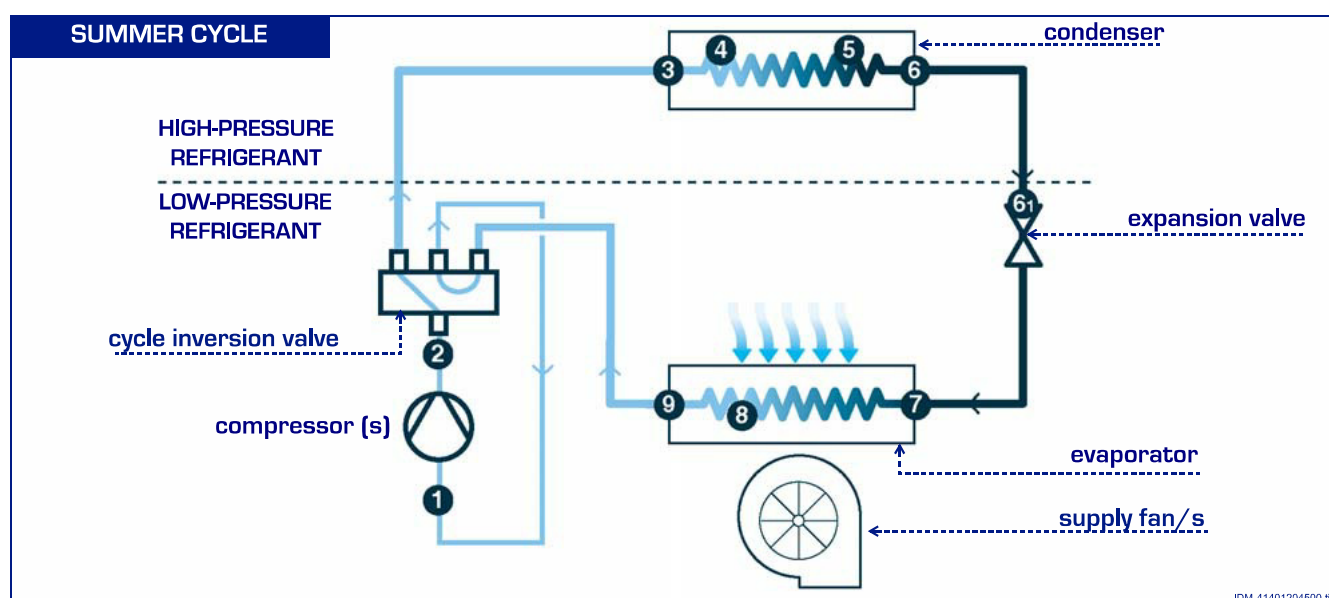
## DW Cooling circuit diagram



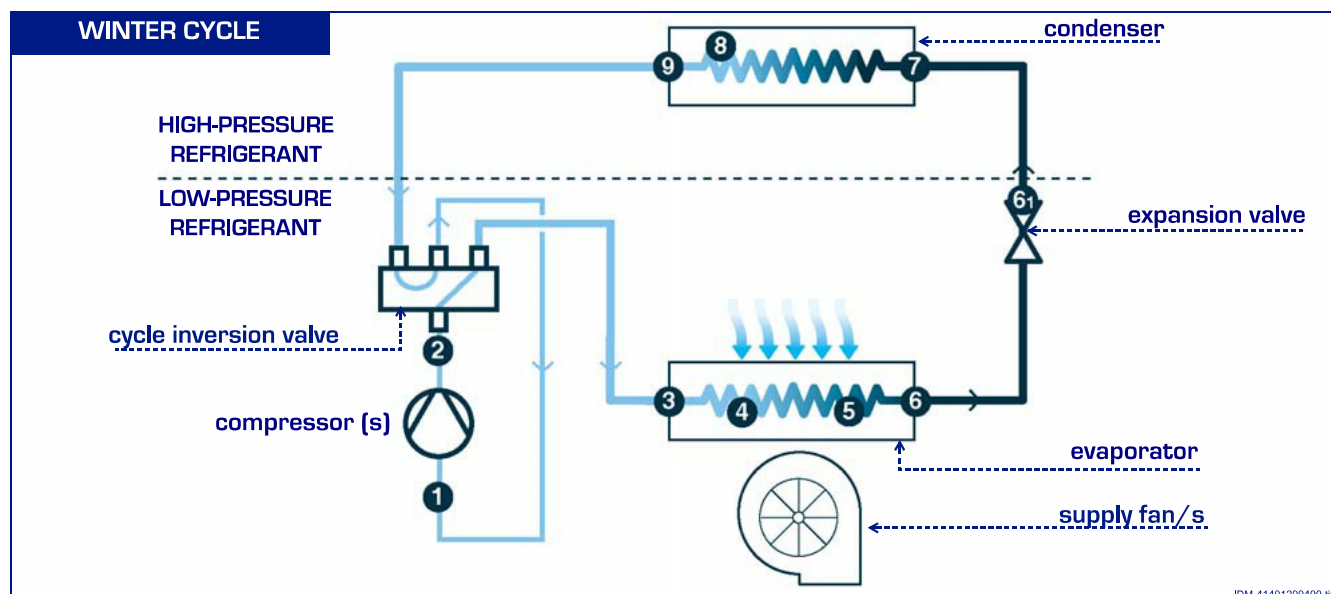
- from point 8 to point 4 the refrigerant is in the vapour phase
- from point 4 to point 5 the refrigerant is reduced from its vapour phase to its liquid phase
- from point 5 to point 7 the refrigerant is in the liquid phase
- from point 7 to point 8 the refrigerant is reduced from its liquid phase to its vapour phase

The cycle is inverted in DW.P heat pump version to allow the machine air heating.

## DW.P. Cooling circuit diagram



- from point 8 to point 4 the refrigerant is in the vapour phase
- from point 4 to point 5 the refrigerant is reduced from its vapour phase to its liquid phase
- from point 5 to point 7 the refrigerant is in the liquid phase
- from point 7 to point 8 the refrigerant is reduced from its liquid phase to its vapour phase



- from point 8 to point 4 the refrigerant is in the vapour phase
- from point 4 to point 5 the refrigerant is reduced from its vapour phase to its liquid phase
- from point 5 to point 7 the refrigerant is in the liquid phase
- from point 7 to point 8 the refrigerant is reduced from its liquid phase to its vapour phase

### Chilled water feeding machine

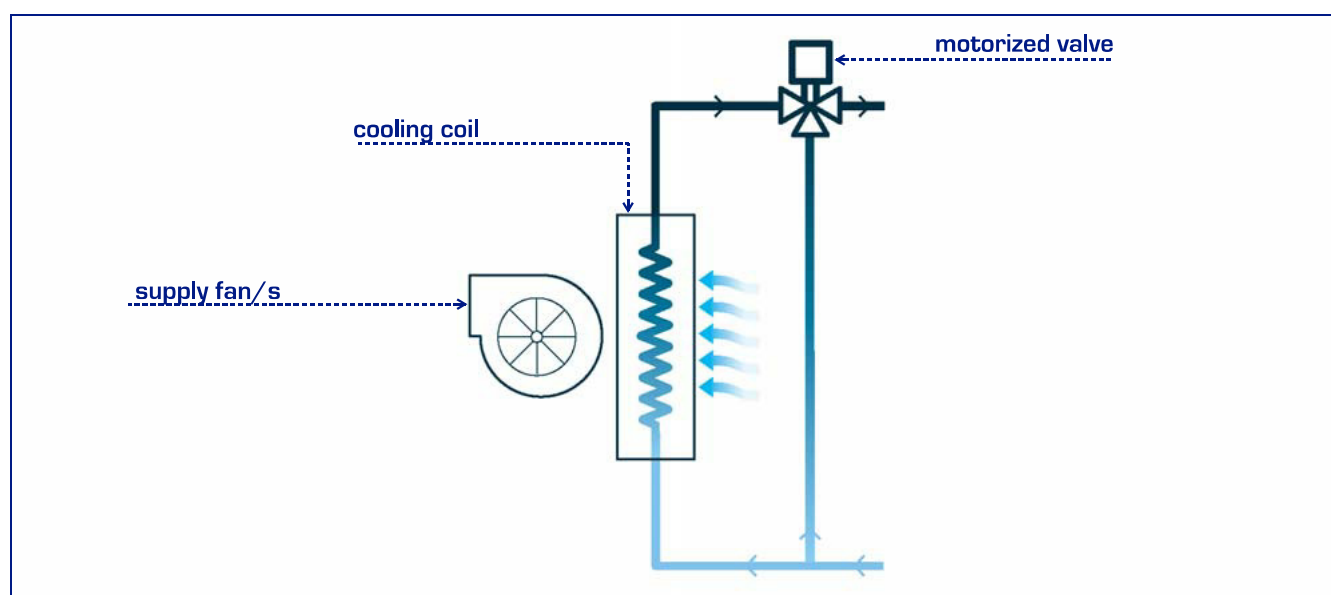
The machines are basically made up of a heat exchange section. They work cooling and dehumidifying the air of the room to be conditioned.

The room air is conveyed through the cooling coil by the supply fan(s). The cooling effect is obtained through the chilled water coming from a remote chiller.

The heat, subtracted in the heat exchanger section from the air to be

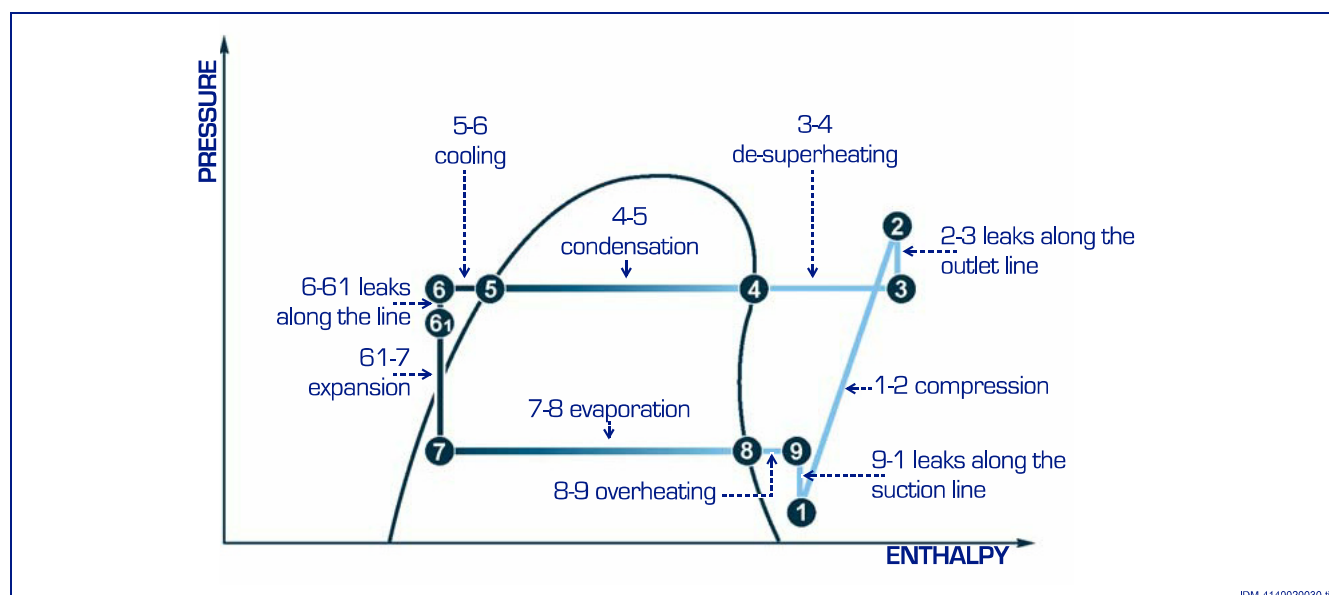
cooled, is transferred to the water that will be cooled by the remote chiller.

A motorized valve controls the water flow in the heat exchanger section.

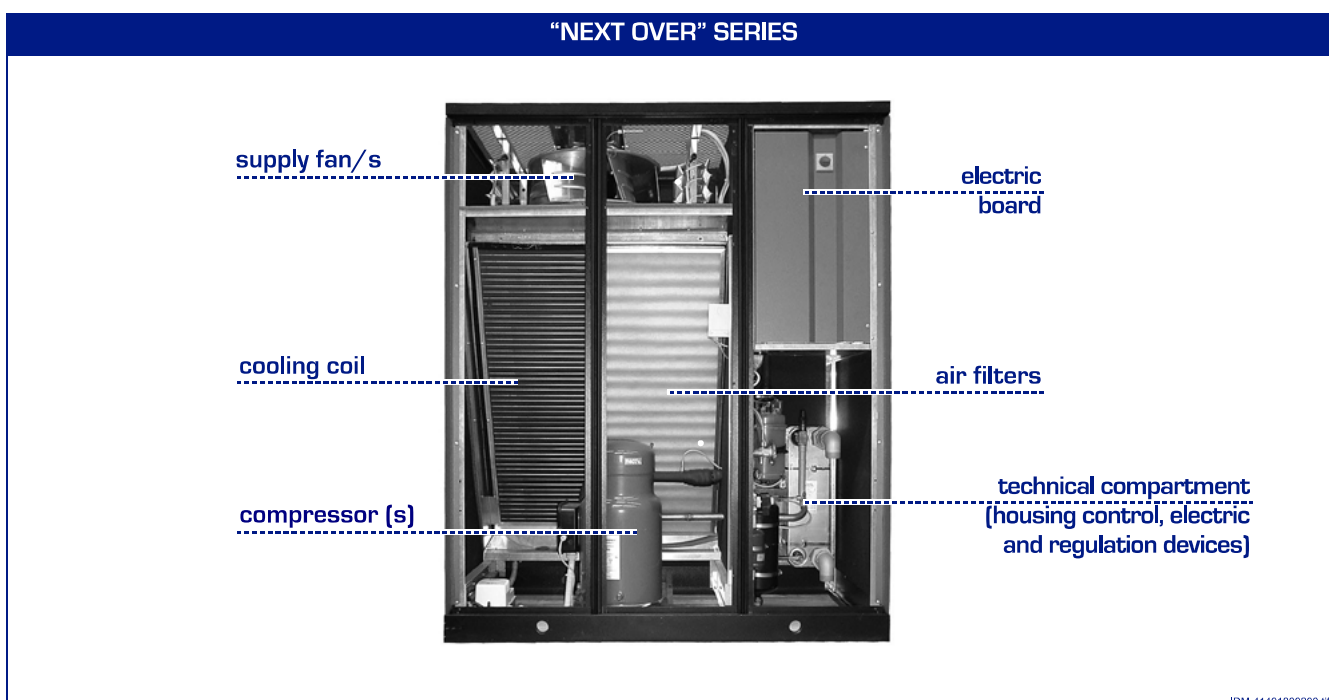


## TECHNICAL INFORMATION

The graph shows the variations in the refrigerant' pressure and enthalpy during the entire thermodynamic cycle.

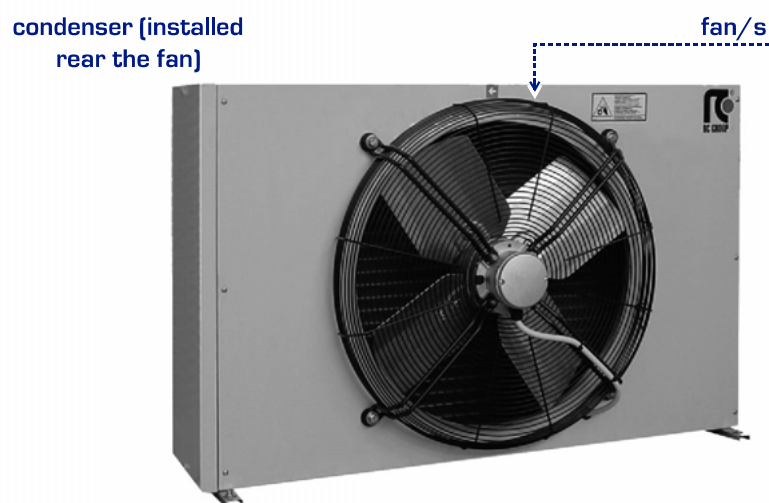


These pictures show the main components, for the various series and cabinets.



**"NEXT UNDER" SERIES**

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**"TEAM MATE" SERIES – REMOTE AIR COOLED CONDENSER WITH AXIAL FANS (ONLY FOR DX – DX.P MACHINES)**

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**"TEAM MATE" SERIES – REMOTE AIR COOLED CONDENSER WITH CENTRIFUGAL FANS (ONLY FOR DX – DX.P MACHINES)**

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## 2.3 OPTIONALS DESCRIPTION

Because any specific requirements can be identified from the design stage, the manufacturer is ready to make the following optionals available:

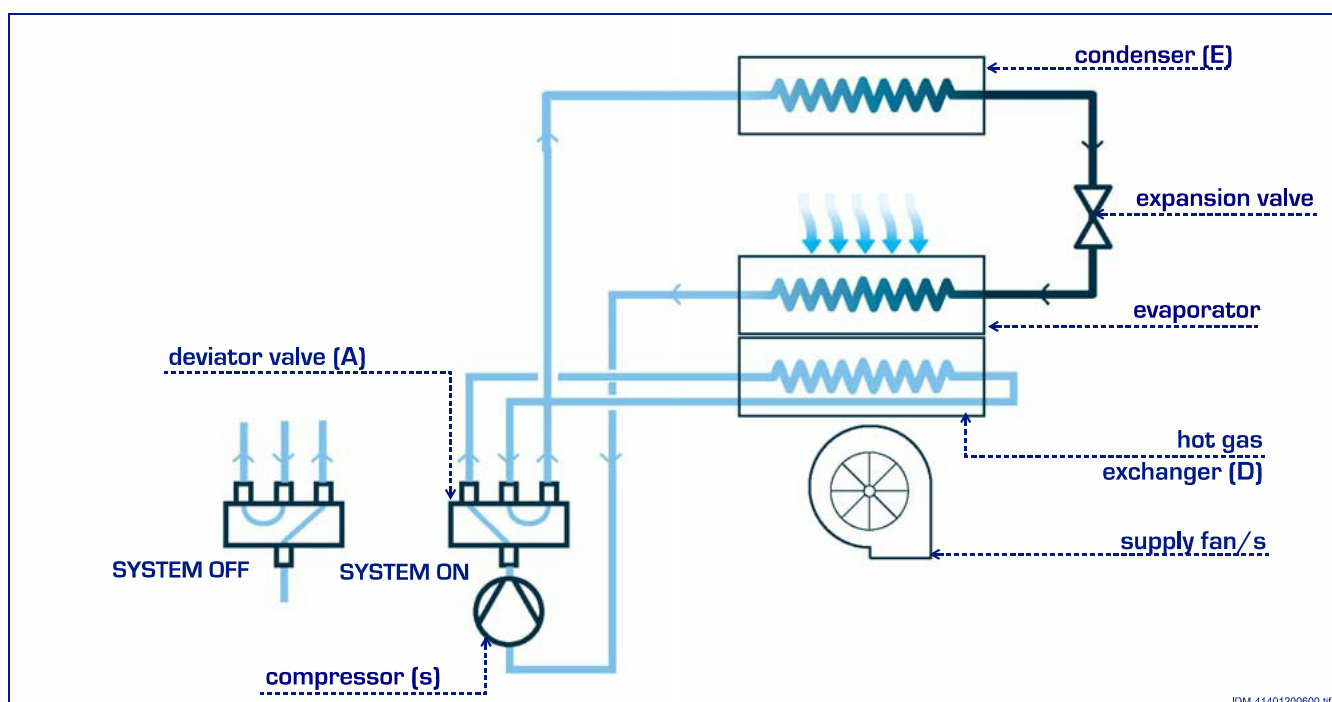
- **Hot gas re-heating system:** see diagram and functional descriptions
- **Water re-heating and heating system:** see diagram and functional descriptions
- **Extra Circuit system:** see diagram and functional descriptions
- **Free Cooling system:** see diagram and functional descriptions
- **Floor stand:** see diagram and functional descriptions
- **Bottom panel:** see diagram and functional descriptions
- **Air delivery plenum for Under version:** see diagram and functional descriptions
- **Air delivery plenum for Over version:** see diagram and functional descriptions
- **Steam humidifier:** immersed electrodes type, fitted with electronic control, humidity sensor, steam distributor, water discharge pipe and switch for manual water discharge.
- **Electric heater:** with 1 or more working steps, in aluminium armoured elements with integral finning. The system is fitted with safety thermostat.
- **Capacity control:** see diagram and functional descriptions
- **Forced dehumidification system:** see diagram and functional descriptions.

### Hot gas re-heating system

The system is used when it is necessary to control an increase in relative humidity value of the air that has been already cooled and dehumidified.

Upon a re-heating request, the valve **(A)** diverts the refrigerant from compressor to the additional exchanger **(D)** with consequent re-heating of the handling air. The refrigerant is then brought to the condenser coil **(E)** and then back to the evaporating coil. During normal working conditions, without re-heating request, the valve **(A)** divert the refrigerant from compressor to the condensing coil **(E)**.

The diagram shows the main components position and the working logic.

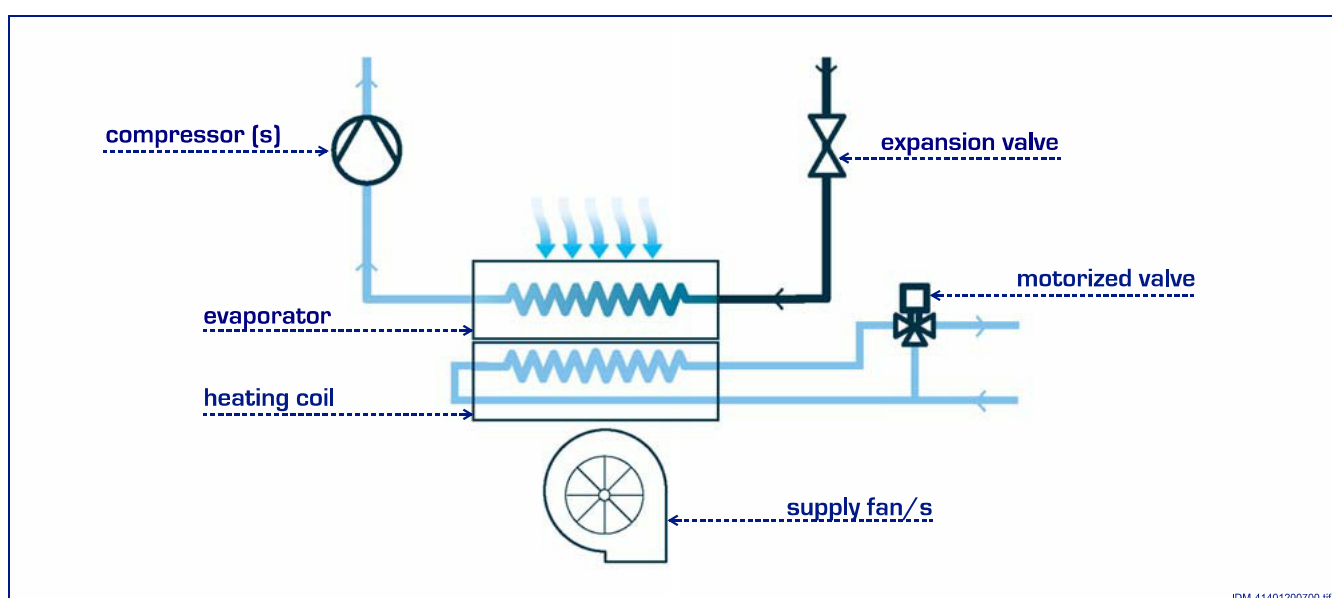


### Water re-heating and heating system

The system is used when it is necessary to control an increase in relative humidity value of the air that has been already cooled and dehumidified or for heating.

Hot water is used to feed a finned coil installed downstream the cooling coil and a motorized valve provides the water flow control in the heat exchanger.

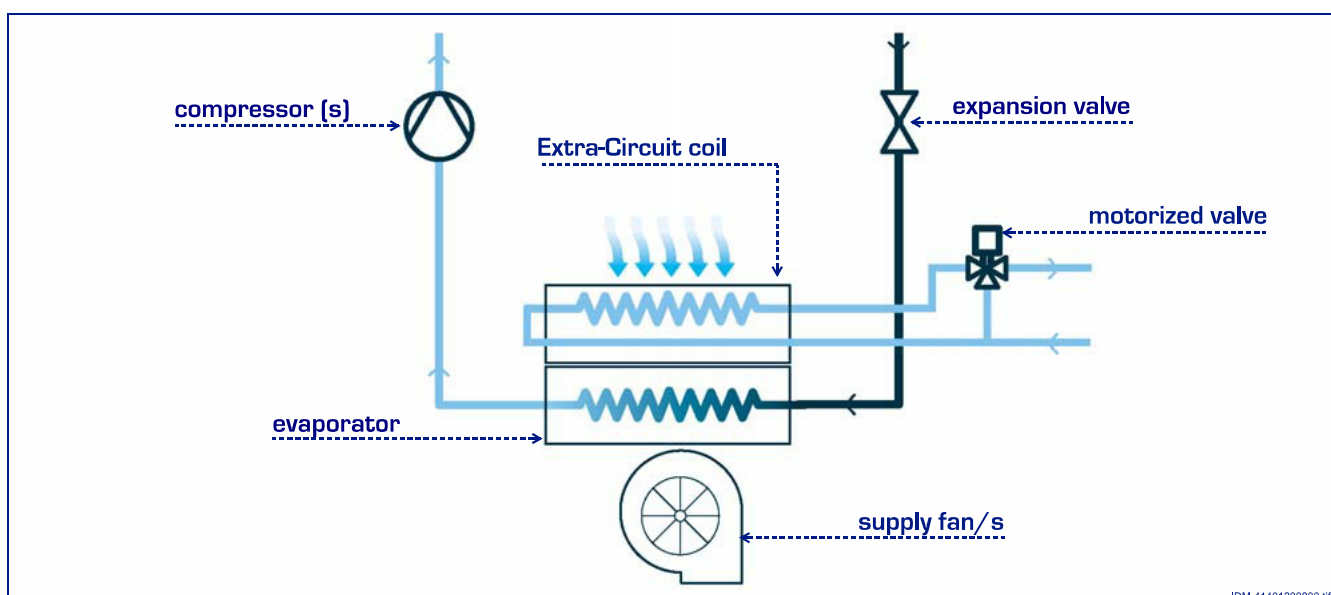
The diagram shows the main components position and the working logic.



### Extra circuit system

The system is used when it is necessary a second source cooling system as backup or aid to the main cooling system. The system includes a chilled water cooling coil with a motorized valve directly driven by humidity control system. The cooling coil is installed upstream the main cooling coil; in this way the air is partially or totally cooled before entering the main cooling coil.

The diagram shows the main components position and the working logic.



### Free Cooling system

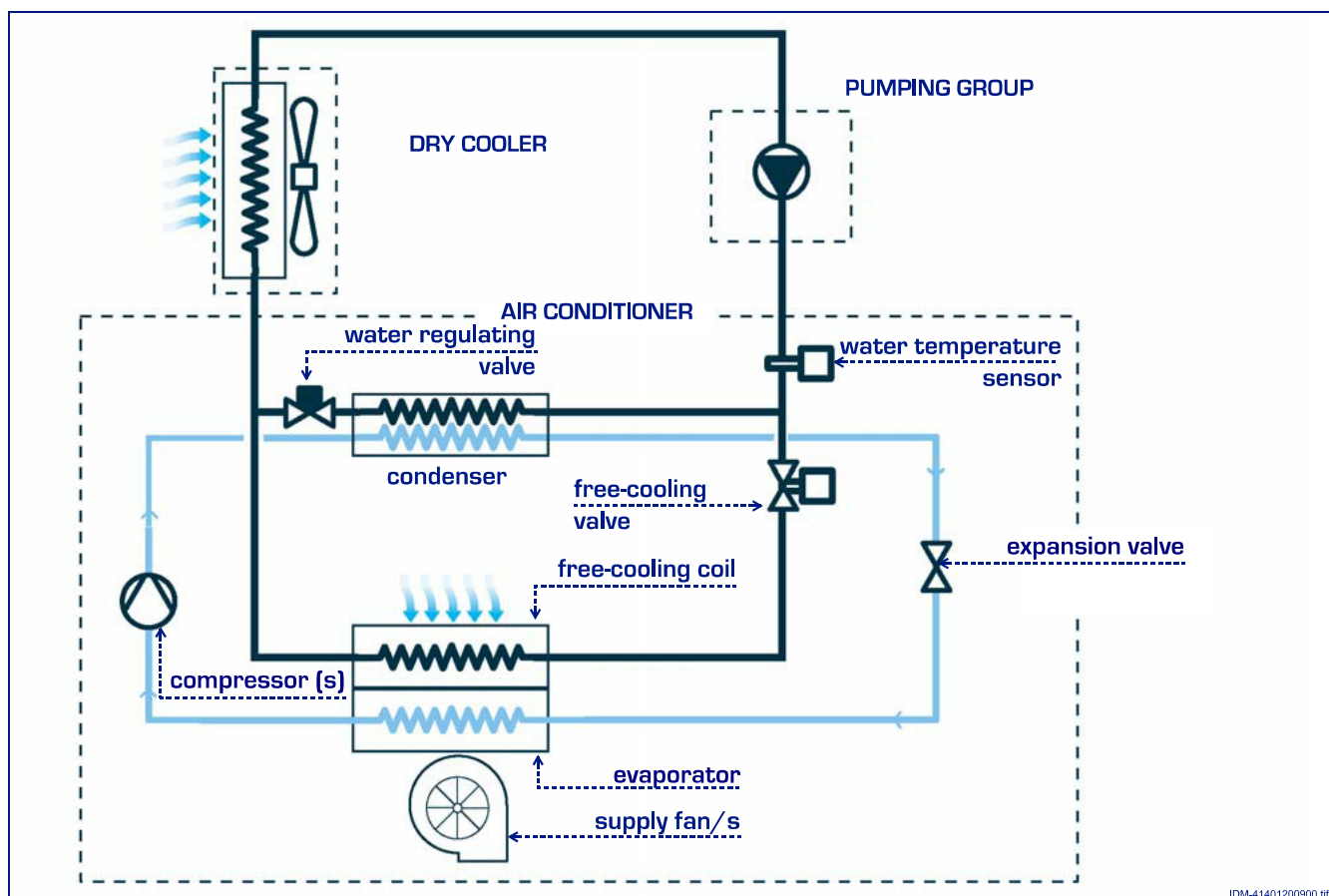
In DW versions the system allows free-cooling when the outdoor air temperature value is lower than given values.

The system includes:

- chilled water cooling coil
- control valve
- water regulating valve
- hot gas injection system
- water temperature sensor

The coil is installed upstream the main cooling coil; in this way the air is partially [partial free-cooling] or totally [total free-cooling] cooled before entering the main cooling coil.

The diagram shows the main components position and the working logic.



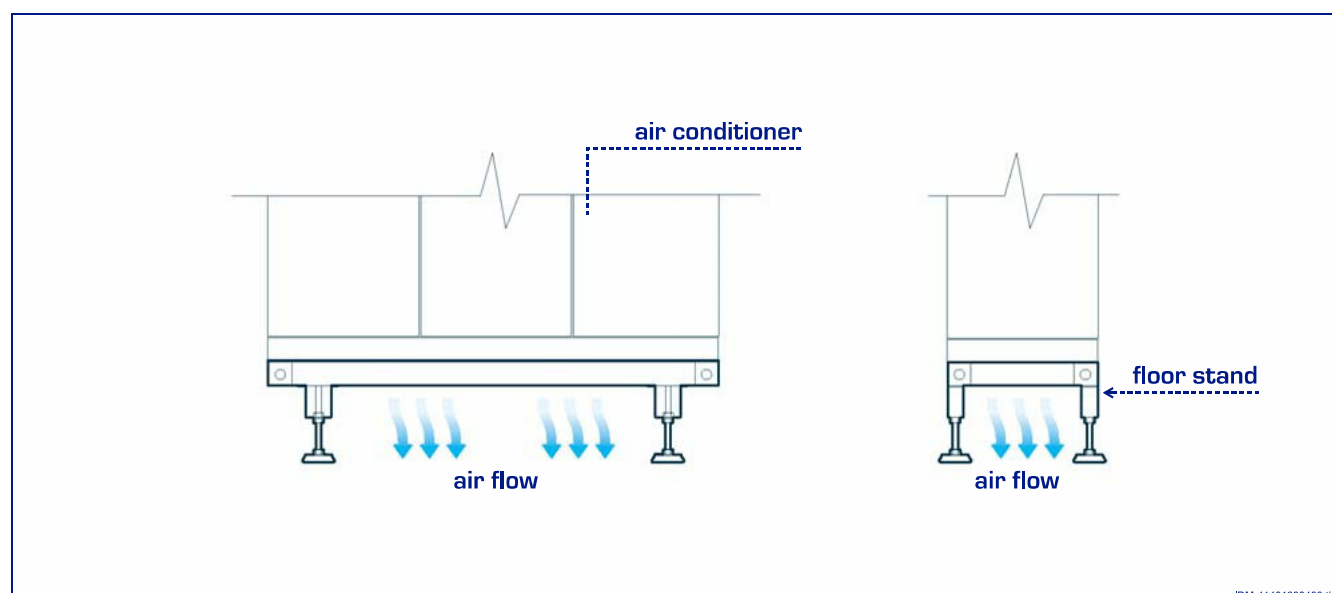
### Floor stand

Accessory equipped with rubber holders available for all machine in Under version.



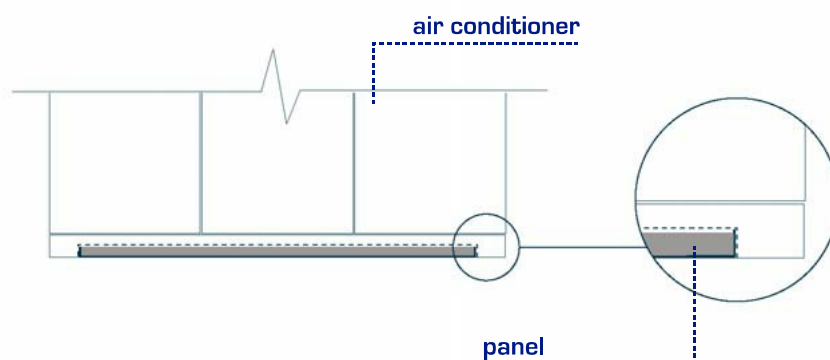
### Important

Install a gasket between the floor stand and the machine base.



**Bottom panel**

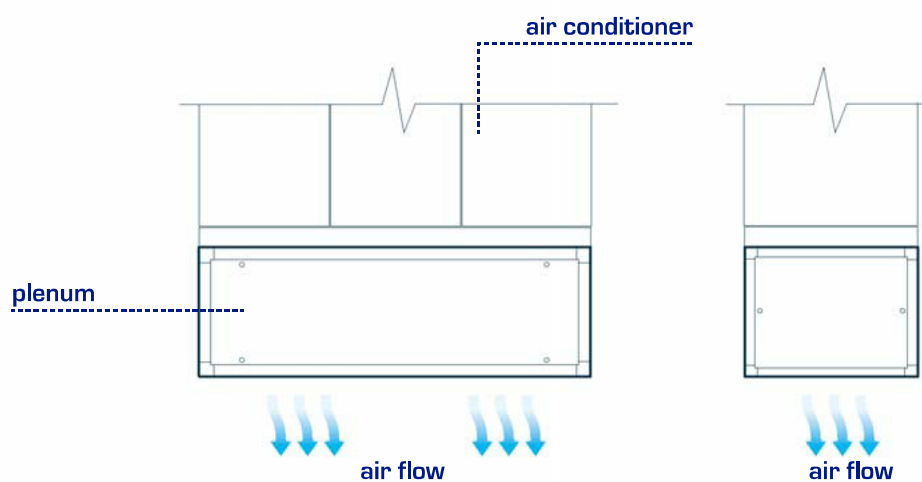
Available for machines in OVER version. It is used for a noise reduction of the machine base, when the machine is installed directly on particular floor.



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**Air delivery plenum for UNDER versions**

The plenums have the same characteristics of the machines and are installed under the machine without any increase in overall dimensions.

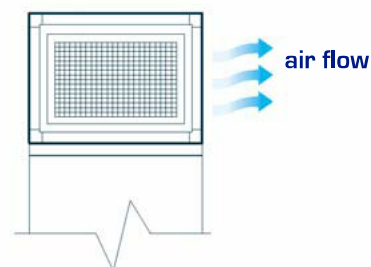
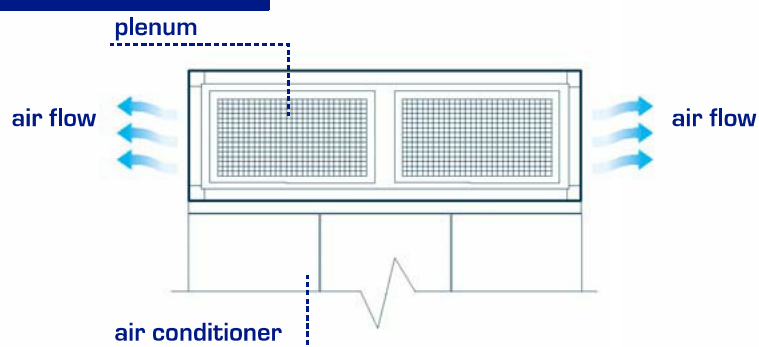
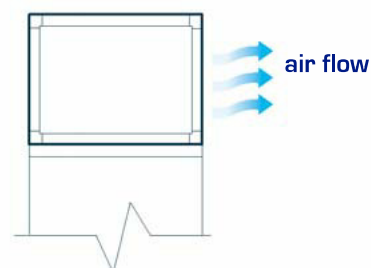
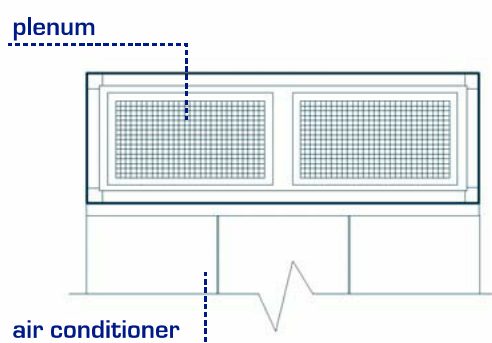
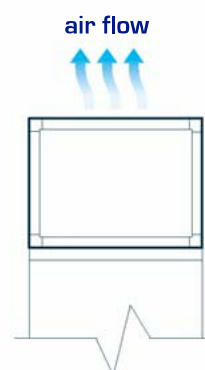
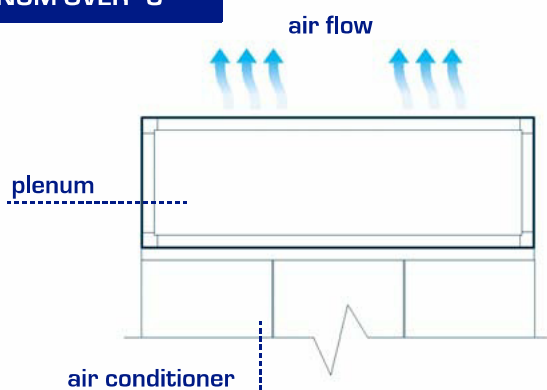


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**Air delivery plenum for OVER versions**

The plenums have the same characteristics of the machines and are available in three solutions.

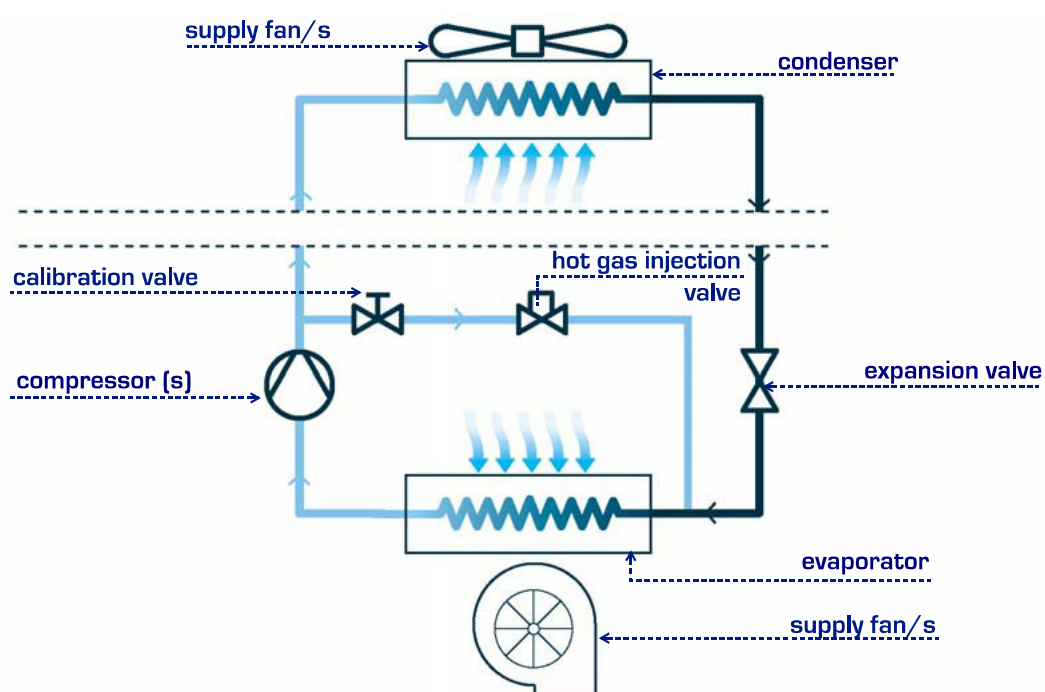
- A)** Plenum with grilles on three sides for direct air distribution into the room.
- B)** Plenum with frontal grille for direct air distribution into the room and absorption partitions
- C)** Plenum for ducting with noise absorption partitions.

**PLENUM OVER "A"****PLENUM OVER "B"****PLENUM OVER "C"**

### Capacity control

A hot gas injection valve is installed for each compressor, in order to obtain an additional cooling capacity step. The diagram shows the system for a DX machine type. The optional is available also for the other versions.

The diagram shows the main components position and the working logic.



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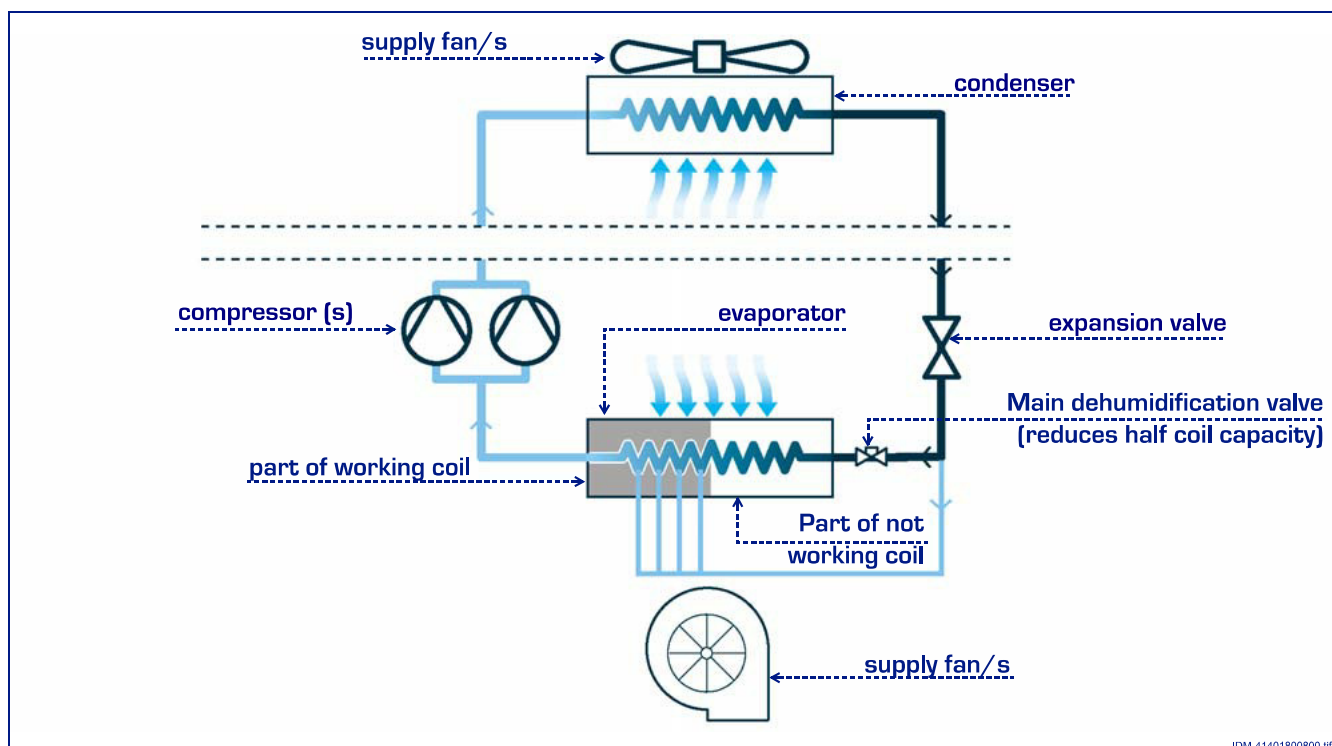
### Forced dehumidification system

The system is available for all units series neXt.

It is not possible to activate the system in Heat Pump units working in heating mode

The forced dehumidification is achieved with reduction of the supply fan(s) rotation speed. For units equipped with two compressors connected in parallel, besides reduction of the supply fan(s) rotation speed, the system foresees the 50% reduction of the cooling coil surface.

The diagram shows the main components position and the working logic.



## 2.4 SAFETY DEVICES

During the design and production stage, the manufacturer has installed safety devices (active or passive) conforming to the laws and regulations in force in the country where the machine will be used. The various types of devices that can be installed are described below.

**Safety valves:** installed on the machine as indicated in the diagram.

