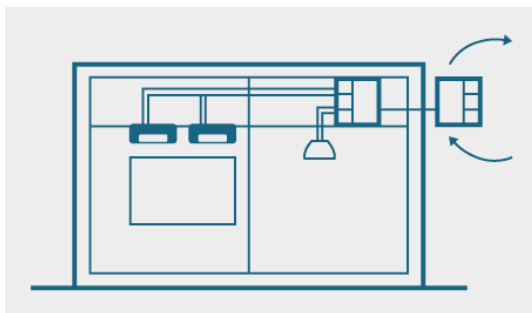


Central DX air conditioners

Central DX systems are interconnected by refrigerant pipe-work with a separate indoor and outdoor unit and are called multi-split units and are increasingly used to provide flexible and modular cooling (and heating when the systems are reversible) systems for residential and commercial buildings. E.g., multi split/VRV/VRF units, packaged ducted units are used to cool multiple rooms and large dwellings. Ducted split units may have a separate ventilation unit whereas ducted central systems (packaged central) include a ventilation system.

Ducted splits/multi split



These systems are similar to the non-ducted split/multi split except that these contain dedicated mechanical ventilation systems. The ventilation systems operate independent of the cooling unit. Therefore, the duct size is very small compared to packaged central systems.

Efficiency

EER (W/W) typical: 2.8-3.3

EER (W/W) BAT: 6

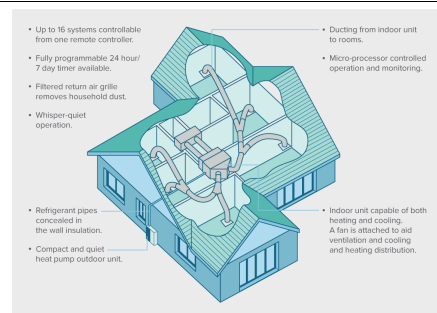
Advantages:

- Single central equipment can serve multiple rooms
- Fresh air requirement can also be taken care of unlike the non-ducted systems

Disadvantages:

- If the distance between indoor and outdoor units exceeds a critical limit it can cause significant

Ducted central systems (Packaged central) (Less advisable: need fans and other loads)



This type of system distributes cooled air from a central DX unit and air-handling unit through ducts to each room. These are the dominant solution in the USA and Canada, common in Australia but almost unknown in the EU and other parts of the world. Losses are suffered through heat gain in the ducts (especially if these pass through non-cooled zones) and fan energy is needed to force the cool air around.

Efficiency

EER (W/W) typical: 2.8-3.3

EER (W/W) BAT: 6

Typical cooling efficiency of the ducted systems is about the same as split and multi split units. However, these systems tend to consume 20- 40 % more energy overall due to cooling through forced air convection which requires operation of fans and other auxiliary loads.

Advantages:

- Single central equipment can serve multiple rooms
- Fresh air requirement can also be taken care of unlike the non-ducted systems

Disadvantages:

- Consumes more energy in the form of fan as cooling is done through forced air convection

cooling losses from the pipes

- Installation requires significant space for ducting in ceiling or roof voids making it less favourable for retrofitting
-

bigee.net

bigEE is an international initiative of research institutes for technical and policy advice and public agencies in the field of energy and climate, co-ordinated by the Wuppertal Institute (Germany). Its aim is to develop the international web-based knowledge platform bigee.net for energy efficiency in buildings, building-related technologies, and appliances in the world's main climatic zones.

The bigee.net platform informs users about energy efficiency options and savings potentials, net benefits and how policy can support achieving those savings. Targeted information is paired with recommendations and examples of good practice.

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